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Kimberly-Clark to Open New Mill in June

Creped Wadding Plant In Ontario Will Manufacture Product From Pulp Slushed From Spruce Falls Co.—M. & O. Co. Launches $7,000,000 Post-War Modernization Program—Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 21, 1945—Operation of the new creped wadding mill of Kimberly-Clark Corporation of Canada, located at Kapuskasing, Ontario, will start next month, officials announced last Thursday, May 17, at Neenah, Wis.

Kimberly-Clark Corporation of Canada, a wholly-owned subsidiary of the American company, which has its main offices at Neenah, has had its new mill under construction for the last year. It adjoins the plant of the Spruce Falls Power and Paper Company, of which Charles Sage is president.

The new mill will produce creped wadding suitable for Kleenex, using pulp slushed to it from the pulping plant of the Spruce Falls Company.

Creped wadding made at Kapuskasing will be shipped in the form of "hard rolls" to the converting plant of the International Cellucotton Products Company at Niagara Falls, Ontario, for conversion into Kleenex needed for the Canadian and overseas markets.

Wesley F. Cook, formerly a member of the industrial relations staff of the parent company at Neenah, left for Kapuskasing last fall to take over the management of the new enterprise. Several members of the Kimberly-Clark operating staff will help start up the new equipment. Included among these are W. R. Kellett, general superintendent; W. H. Swanson, staff superintendent of pulp mills; C. W. Nelson, chief engineer; Forrest Werling, assistant staff superintendent, crepe wadding; J. T. Whelan, assistant chief engineer; Horace DuBois, assistant staff superintendent, pulp department, and R. A. Moravek, division engineer, creped wadding manufacturing.

M. & O. Starts $7,000,000 Program

The Minnesota Mining and Manufacturing Company, manufacturer of abrasive papers, has launched a $500,000 modernization program at its plant at Wausau, Wis., to assure greater efficiency of operation and increase production. The program is scheduled to be completed by next spring, according to R. E. Gundlach, manager of the Wausau plant.

The project is part of the $7,000,000 postwar program already announced by the company. Approval of the War Production Board's mining division has been obtained, Mr. Gundlach said, and the work at Wausau is under direction of Harley Murphy of the company's building department.

Crushing and screening facilities of the Wausau plant will be modernized and enlarged, providing an increased production capacity, and improvements are expected to facilitate the manufacture of an increased number of products.

To keep pace with the increased rock-crushing facilities, the color-mixing capacity of the plant's kilns is to be increased. The dust-collecting equipment is in the process of being improved.

The company acquired the Northern Milling Company property, east of its plant, last year in anticipation of the present expansion, it was announced.

Previously announced projects include the construction of a new "scotch" tape building at the company's St. Paul, Minn., plant, and a new roofing granule plant in the South, to serve relatively newly-located roofing manufacturers in the area.

Paper Men in War Contract Clinics

Fox River Valley paper executives are expected to take a prominent part in a war contract termination clinic, which is to be held Wednesday afternoon, June 6, in the auditorium of the Appleton, Wis., School of Vocational and Adult Education, under sponsorship of the Appleton Chamber of Commerce.

Army and Navy personnel will conduct the clinic, which is intended for industries holding prime or subcontracts for directly supplying the Army and Navy with war materials.

Most of the work session will be devoted to an actual demonstration on enlarged forms showing how inventory and settlement proposal forms are filled out; on termination notices, termination finances and property disposal. The clinic is being held for firms wishing to end their war contracts and return to civilian production, according to Lieutenant Commander G. H. Schutt, USNR, of the subcommittee on training and information.

Discusses Scientific Developments

Application of scientific developments during the war during the coming days of peace, were discussed Wednesday, May 16, by Dr. H. F. Lewis, dean of the Institute of Paper Chemistry, Appleton, Wis., in address before Neenah High School students, Neenah, Wis. The occasion was the selection of Russell R. Ellis, a senior, as one of the 40 finalists in the Science Talent Search.

Dr. Lewis pointed out that many of the most significant developments have not been disclosed. He said that ships equipped with radar will never run into icebergs, that planes with radar will be able to keep away from mountains, that walkie-talkies will

(Continued on page 28)

Canadian National Adding to Its Products

Acquisition by Subsidiary of International Paper Co. of Interest In Canadian Masonite Corp. Viewed As Indicating Expansion of Other Paper Concerns—To Fight Sawfly—Other Late Mill News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 21, 1945—An extract from the Wall Street Journal, published in the newspapers here, regarding the extension of the International Paper Company into new fields outside what has hitherto been regarded as the ordinary scope of the pulp and paper industry, brings into focus a movement making rapid and significant progress in Canada. According to the paper quoted, the Canadian subsidiary of the International Paper Company has not only built up a strong position in the manufacture of rigid fiber insulation board, but has recently acquired a half interest in the Canadian subsidiary of the Masonite Corporation, which manufactures hard fiber boards, also has entered the plywood and other woods products fields, "in order to make the fullest use of its forest lands."

The new moves indicated apply to practically all the larger pulp and paper concerns in Canada and are bringing about revolutionary changes in the pulp and paper industry in this country.

Government Encouragement

Reverting to the International Paper Company, it may be said that its acquisition of an interest in the Masonite Company of Canada, a subsidiary of the Masonite Corporation, is not, as the Wall Street Journal intimates, a recent occurrence. It took place in February, 1940, and was part of a plan on the part of the company to manufacture all types of hard fiber wood products for sale in Canada and in export markets other than the United States. Furthermore, encouragement has been given by the Government, owing to wartime demands for these products. Thus, while the newsprint mills of the company have been restricted in output during the war to approximately the industry's average of slightly under 70% of capacity, the company has been permitted to operate its pulp mills at capacity.

The headquarters of the Masonite Company of Canada are in Montreal, and its mill is in the Gatineau Valley, north of Montreal, where it manufactures all grades of Masonite board. The mill has a capacity of 100,000 lbs. of exploded wood pulp per day, and the capacity for production of fiber board is approximately 35,000,000 feet a year.

Immense Forest Holdings

The Canadian International Paper Company is the largest pulp and paper enterprise in Canada. Its holdings of pulpwood timber limits in the province of Quebec alone cover an area of 11,009,127 acres, which are considered adequate for the requirements of the present mills in perpetuity. It also has large holdings of timber limits in New Brunswick, through its subsidiary New Brunswick International Paper Company, whose plant at Dalhousie produces, in addition to newsprint, mill wrapper and core paper, 1,110,000 lbs. of ground wood and 380,000 lbs. of sulphite fiber per day. Its annual production is around 460,000 tons of newsprint, 140,000 tons of dissolving pulp, 140,000 tons of other sulphite pulp, and 15,000 tons of other products. Its pulp mill at Hawkesbury, in the Gatineau Valley, has long been a pioneer in the production of pulp for rayon and transparent cellulose film.

New Possibilities "Almost Limitless"

To the man in the street the industry is still newsprint, yet today 55% of the pulp manufactured in Canada goes into products other than newsprint. What is happening is described by Paul Kellogg, general manager of the Newsprint Association of Canada. He says:

"Every day products made on a paper base, or new uses for paper itself, are being developed. Examples are the so-called dissolving pulps, from which are made gun cotton, rayon, cellophane and celanese. Also a field of almost limitless possibilities is just opening up in pulp-based plastics. Another development is the use of pulp or paper itself either processed mechanically or combined with some other product. Here we have a field limited only by the imagination of man. Certain papers are saturated with tar and similar materials and become building papers, or are coated with asphalt and cut-up slate and become roofing shingles. Paper is made waterproof by saturation with proper chemicals and is then fashioned into countless numbers of useful articles. Paper is coated with wax and it becomes a protection from moisture. Coat paper with the proper black dope, emboss it, and you have imitation leather. Combine many layers of thin absorbent tissue and you get hospital wadding. Mould coarse fibers loosely into a thick sheet and you produce insulation board. These examples only touch the borders of the development field. There is still much to be done in the further utilization of the by-products and the waste of the pulp and paper industry, all of which offer additional opportunities for new industries based upon a continuous and cheap supply of raw material."

It is the utilization of these by-products and waste products to which the industry as a whole is now turning its attention, already in many directions with marked success. The example of the International Paper Company serves to illustrate what is happening in the case of all the larger companies.

War Declared on Sawfly Pest

According to officials of the Provincial Department of Lands and Forests, a survey has revealed that the spruce sawfly pest now exists in epidemic proportions over an area of 120,000 square miles in Quebec and Ontario. It has therefore been decided to follow the example of Ontario, and use airplanes to spray the infected areas with generous quantities of the new and powerful D.D.T. insecticide, in an effort to save the pine and spruce which the pest is destroying.

This insecticide is already being produced in quantity by the Dominion Rubber Company, originally for use against disease-bearing insects in war areas, but has now been released for general domestic use by the government. An experiment last year in Ontario showed that it destroyed all insect life in the forest area where it was applied.

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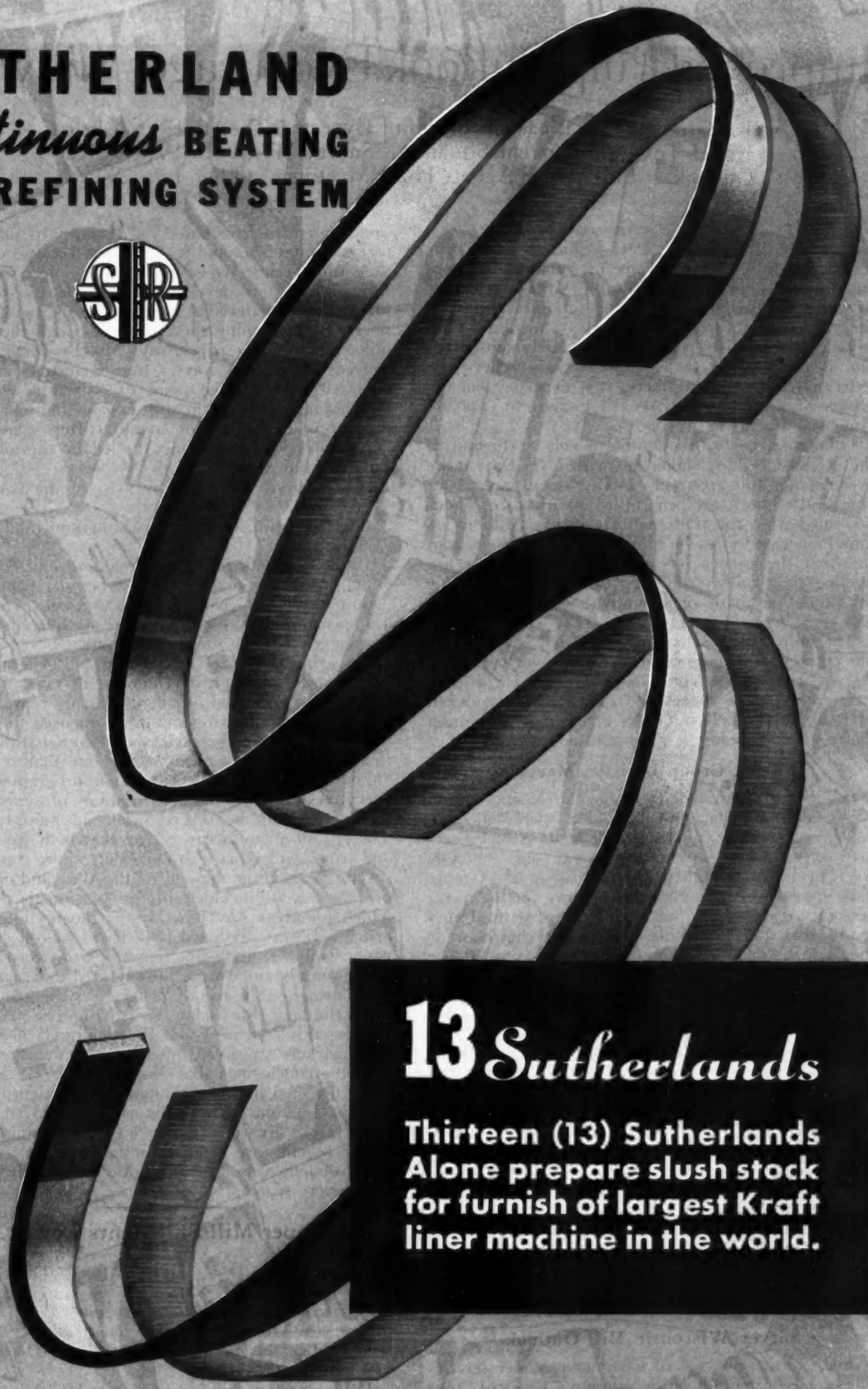

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Improved Pulp Outlook Encourages Midwest

Release of Some Bleached Sulphite Expected To Afford A Little Relief To Tight Current Situation—Survey Wisconsin Paper Mill Outlook — Purchasing Agents Hold Meeting — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 21, 1945—Chicago paper centers were full of discussions of rumors, counter-rumors and some facts concerning WPB's releasing of some bleached sulphite pulp onto the market in the very near future. The amount of nitrating pulp to be released, it is reported, will be fairly substantial and is expected to at least temporarily relieve the extremely tight situation here. It is expected that the effects of this move will be felt in time to expedite June manufacturing quotas.

Otherwise, no matter how hard you try to find it, the optimism which should go with V-E Day, however, is not too apparent. Jobber stocks are about gone and requests are being filled on a basis of about one-third what the trade actually wants. Millions of tons of demand must be built up before any one can say that the corner has been turned. Jobbers are holding their money, building up their reserves for the stock purchase opportunities which they hope will come soon.

The pulp situation as far as Sweden is concerned has not yet given any one here grounds for optimism. As yet, it is reported, only one boat loaded with pulp has reached these shores and this was returned full of Red Cross supplies. This is taken as an indication that regular shipping is by no means set as yet.

Paper Group Division Meets

The Paper Group division of the Purchasing Agents Association of Chicago will hold a special meeting next Wednesday evening, May 23 at the Hotel Sherman according to an announcement sent out this week by F. W. Sinsabaugh, chairman of the Group. Two special treats are reported in store for the members. T. A. Corcoran, purchasing agent of the Courier-Journal and Louisville Times and chairman of the N.A.P.A. Paper Committee, will discuss "Paper —the No. 1 Critical Commodity". Mr. Corcoran has written extensive reports on the paper situation which have appeared in the publications of the Purchasing Agents Association and is expected to draw an unusually large attendance. An extra feature will be the first public showing of a new film called "The Mill of Paper Magic", through the courtesy of the Thilmany Pulp and Paper Company of Kaukauna, Wisconsin. The picture shows the manufacture of machine glazed wrapping and tissue, kraft wrapping, glassine and grease-proof papers, waxed papers, wax laminated papers, asphalt papers, printed papers and bags from pulp to the finished product. The films are in color and full sound track is provided. Some members of the National Executive Committee of the Purchasing Agents Association, Paper Group, are expected to be present to lend an official character to this unusually interesting meeting.

Survey Wisconsin Mill Outlook

The Chicago Journal of Commerce, under the by-line of Herbert Fredman, is running a series of front page stories on the present and future paper outlook. Both are written under an Appleton, Wisconsin, dateline. The stories are based on a survey of manufacturers in that area and indicate that because of wartime discoveries, paper has become more versatile through the new developments in the use of non-fibrous raw materials, such as resins, with wood fibers. By combining these materials with the wood-pulp, the resultant paper, says Mr. Fredman, is improved in many ways. Improvements are not expected to reach the point of "startling changes" but they are going to greatly expand the market for paper products, Appleton manufacturers reported.

New developments being studied by the manufacturers include:

1. New adhesives and resins used in the packaging field.
2. Paper plastics, lighter than aluminum and strong and durable.
3. Paper products for use in building and construction-insulating materials, wall boards, paper window shades and paper carpets and rugs.
4. Paper household specialties with added wet strength achieved through the use of resins.
5. Lowering in cost of advertising and general printing papers through development of new processes including a method of manufacturing coated paper in one continuous operation as opposed to former methods requiring services of two separate mills.

Mr. Fredman's articles point out that a major "must" in the post-war expansion program of mill executives interviewed is location of expansions where they can be self sufficient in pulp supplies. These same manufacturers feel that both wood pulp and paper will remain in extremely short supply for several years after the end of the War and all types of paper were included in the pessimistic forecast which found its way into Mr. Fredman's interesting articles. It was predicted that drives to collect waste paper would be necessary for some time to come.

War needs alone were not credited as reasons for the shortages. The use of paper, says the article, has been climbing for many years. Figures are given proving this statement and the conditions in foreign pulp markets are given intensive consideration along with the conclusions that Norway forests have been badly depleted by indiscriminate German cutting and that in Finland many mills were destroyed. Shipments from Russia are also highly uncertain. Most Swedish mills are reported intact but for a period Swedish pulp was used for cattle fodder when other foods were scarce.

Paper Mill Shipments Lower

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 23, 1945—The value of paper manufacturers shipments in March was 226 compared with 228 in February and 206 in March of last year taking an average month of 1939 at 100 according to the monthly survey of the Department of Commerce.

Value of paper mill inventories in March was 134.3 compared with 133.00 and 136.1 in March of last year also taking an average month of 1939 at 100.

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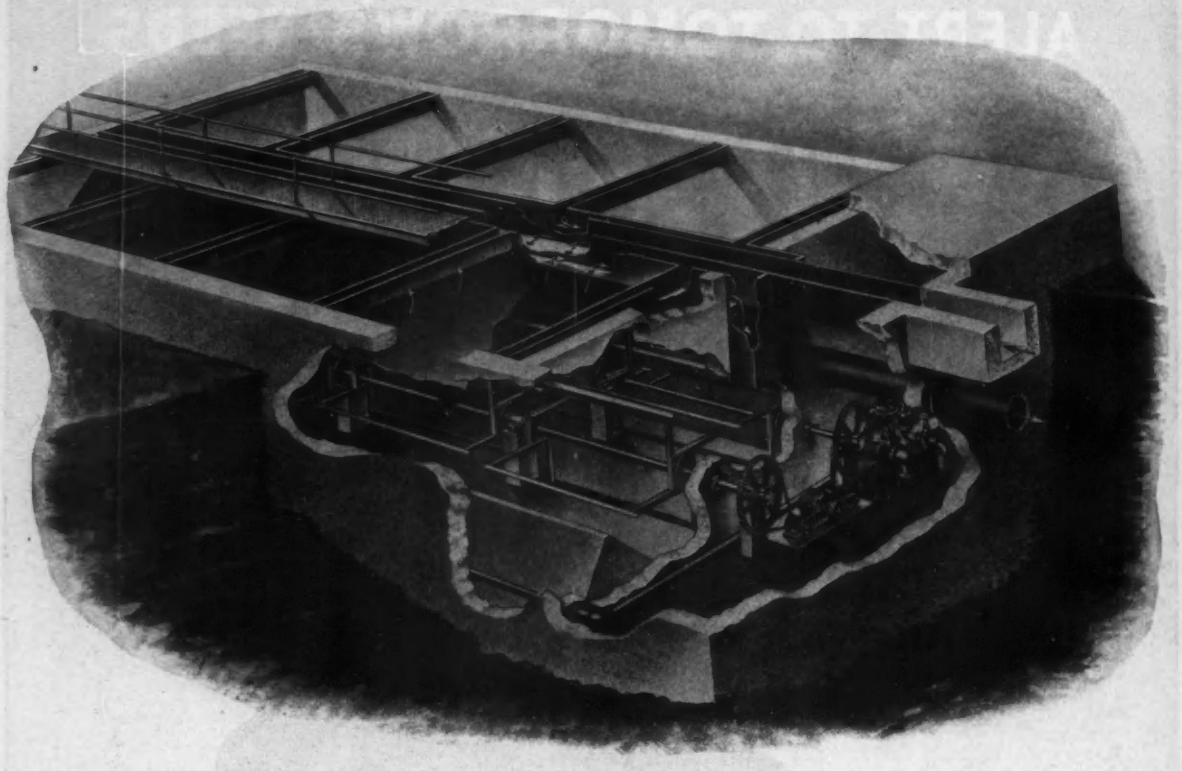

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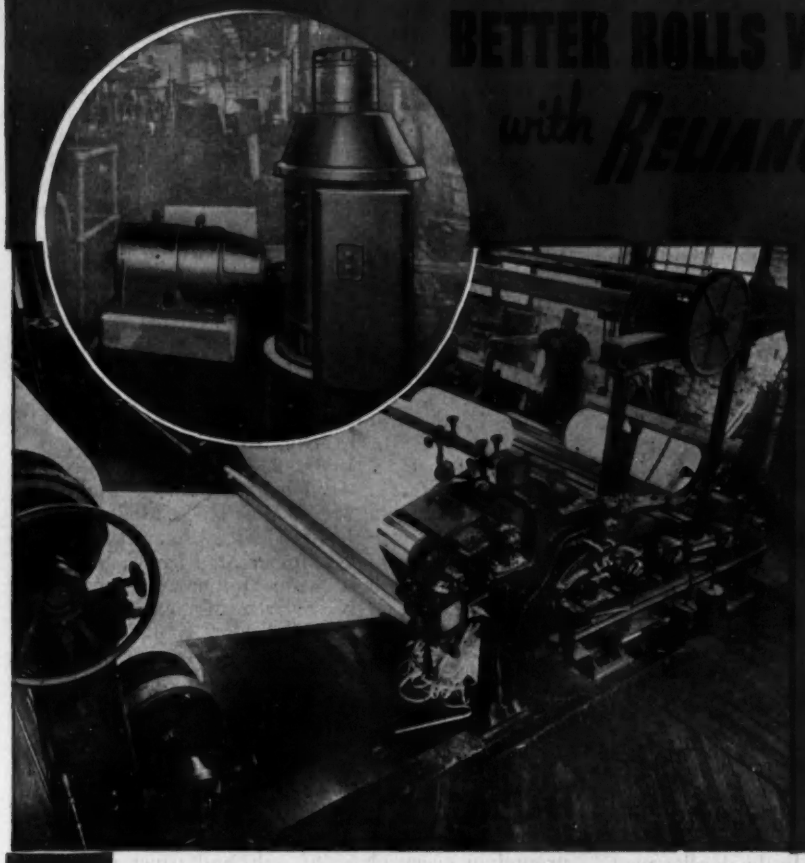

Slow threading speeds, combined with smooth acceleration, avoid stress, strains and breakage.

Simplified machine control reduces operator fatigue.

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Reliance V★S is an all-electric adjustable-speed drive for alternating current circuits. The V★S installation (in circle above) operates the Moore & White Rewinder illustrated.

Many advantages, including those mentioned above, have followed the installation of Reliance V★S Drive on the rewinder of one of the paper machines in the Linden Division of the American Writing Paper Corporation. Similar results are being obtained in many other paper mill operations through use of Reliance Motors and Reliance V★S Drive. If you would like complete information, call in a Reliance Application Engineer.

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Empire State TAPPI Meets at Cornwall

The Empire State Section of the Technical Association of the Pulp and Paper Industry met jointly with the New York-Canadian Division of the Superintendents Association at the Cornwallis Hotel, Cornwall, Ontario, on May 18-19, 1945. The meeting was sponsored by the Watertown Group of the Section.

Visit Cornwall Division

On Friday afternoon there were visits to the Cornwall Division of the Howard Smith Paper Mills, the Milles Roches Division of the Provincial Paper Mills, and the Rayon Plant of Courtaulds, Ltd. In the evening, following dinner there were brief talks given by A. E. H. Fair, Vice President of the Alliance and Don Valley Paper Companies, Douglas Jones, Secretary-Engineer of the C.P.P.A. Technical Section, and R. G. Macdonald, Secretary-Treasurer of TAPPI. The feature speaker was E. R. Reid, Director of Public Relations, Department of Veterans Affairs, Dominion of Canada, Ottawa, Ont. who discussed "Rehabilitation of Veterans for Postwar Industry." Frank J. McCourt of the International Paper Company and Chairman of the Empire State Section presided. The officers and committeemen were introduced.

Three Papers Presented

On Saturday morning three papers were presented. Walter Couture, Dilts Machine Company, Fulton, N. Y., talked on "Impeller Agitation," Fred Goodwill of the St. Regis Paper Company, Deferiet, N. Y., presented a "Review of Peroxide Bleaching of Groundwood," and George H. Tomlinson II of the Howard Smith Paper Company, Cornwall, Ont. reported on the progress being made in the development of "Laminated Plastics." Those present had an opportunity to visit the new lignin plastic plant at Cornwall.

Because of excessive rain it was necessary to cancel plans for the afternoon golf tournament. However, other mills were visited, an excellent program for the ladies present was carried out and a dinner dance was held on Saturday evening.

The New Officers

The Empire State Section chairman Mr. McCourt reported on the results of the election of officers for the coming year. Those elected were as follows: Chairman—H. A. Spencer, Knowlton Brothers, Watertown, N. Y. Vice-Chairman — John Campbell, Moore Business Forms, Inc., Niagara Falls, N. Y. Executive Committeemen—Robert F. Vokes, Dilts Machine Works, Fulton, N. Y.; D. C. Mathers, Watertown, N. Y.; R. I. Wynne-Roberts, Finch-Pruyn Company, Glens Falls, N. Y., and B. J. Stanselow, Moore Business Forms, Inc., Niagara Falls, N. Y. Martin Jaffe of the National Cellulose Company, Baldwinsville, N. Y., was elected Secretary-Treasurer.

The membership of the Section was reported to have increased from 108 to 174 during the past year.

Members of the meeting arrangements committee included J. E. Taylor, J. N. Schwartz, F. J. Bjornlund, C. E. Lagden, C. N. Candee, R. W. Hynes, P. D. Switzer, D. R. Dick, H. A. Spencer, E. T. Thom, H. D. Cook, F. J. McCourt and Mrs. A. E. H. Fair was general chairman of the Ladies Committee.

Those present included: Howard W. Bartlett, J. B. Beck, M. H. Bennett, Mr. and Mrs. F. B. Bjornlund, Mr. & Mrs. E. F. Boyle, John P. Burns, W. N. Cairnie, C. N. Candee, Warren Chisholm, E. W. Clarke, John Cornell, Mr. & Mrs. J. W. Couture, H. Crabtree, Frank Deegan, Mr. & Mrs. D. R. Dick, C. P. Donogrio, J. Dority, Robert M. Drummond. M. J. Enright, Mr. & Mrs. A. E. H. Fair, Mr. Fitzpatrick, James Foote, Mr. & Mrs. George E. Fromm, Mr. & Mrs. C. I. Gehring, E. A. Godfrey, Mr. & Mrs. F. C. Goodwill, Walter I. Harte, F. J. Hoar, H. A. Horstman, C. I. Horton, Donald A. Hunter, H. D. Hyman, Mr. & Mrs. R. W. Hynes, Douglas Jones, H. E. Karberg, Mr. & Mrs. J. M. Kelly, Mr. & Mrs. J. D. Kesterke, T. M. Kettles, David C. Knowlton, Mr. & Mrs. Lagden, O. F. Lane, A. B. Leachy, Joseph A. Leek, C. E. Libby, J. H. Loomis, F. S. Macdonald, N. J. Macdonald, R. G. Macdonald, Frank J. McCourt, Robert L. McEwen, Mr. & Mrs. H. L. Mellen, N. F. Moore, G. E. Osterheldt, George Pennock, Mr. & Mrs. Carl E. Reynolds, Homer M. Rice, C. S. Robb, J. P. Rolland, Robert Seidl, Horace A. Spencer, S. G. Stapley, Dr. J. N. Swartz, Mr. & Mrs. P. D. Switzer, Mr. & Mrs. J. E. Taylor, E. J. Thom, Dr. & Mrs. G. H. Tomlinson, J. H. Treadwell, Mr. & Mrs. Harold R. Wheeler, Mr. & Mrs. Anthony J. Wirpsa, J. V. Wolff, C. E. Youngchild.

Henderson Sets Up Sales Agency

Effective May 15 a new sales and service organization began operations in the South. The new company is headed by W. W. Henderson, with 30 years background in every phase of pulp and paper mill construction and operation, with the largest mills in the South. W. W. Henderson & Sons will have the exclusive sales and service on such outstanding equipment, machine clothing and paper mill supplies as DeZurik Shower Company, Wisconsin Wire Works, Brandon Dryer Felts, E. D. Jones & Sons, Parker Safety Equipment Company, Wood Treating Chemical Company, and others to be added later.

Associated with Mr. Henderson will be his three sons, Wm. W., Jr., J. Audrey, and Richard J. all at present in our air forces. All three of the boys had pulp and paper mill experience in several of the larger pulp and paper mills in Alabama, Georgia and Texas, before entering the Air Force.

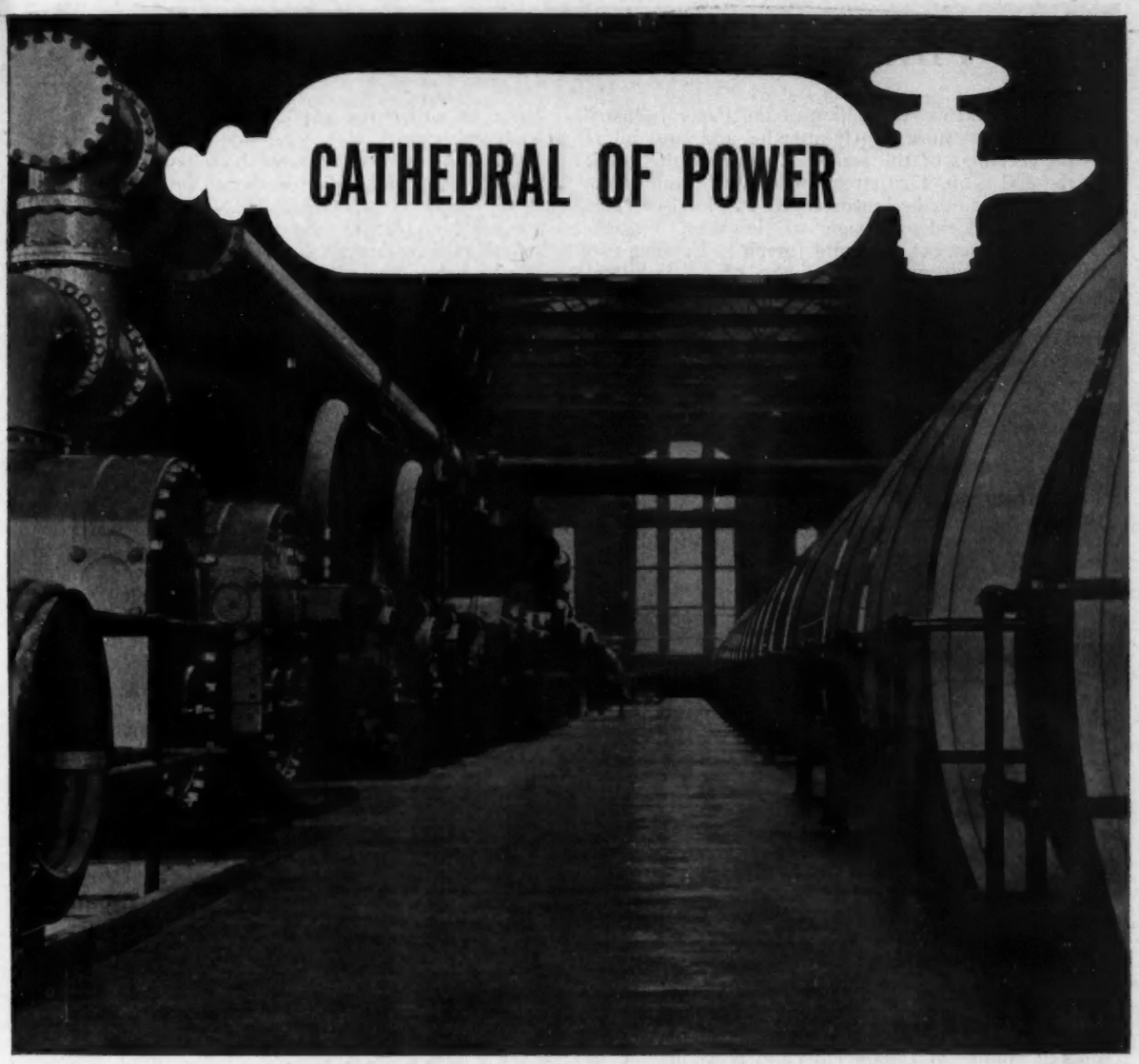
Until they return, Mr. Henderson will handle the business. Later each of the boys will be established in one third of the territory, and from a central office directed by Mr. Henderson, will sell and service the equipment and supplies handled in the mills they will contact regularly.

Temporary address of the company will be P. O. Box 256, Lufkin, Tex.

Shartle Brothers Get Fourth Star

The Shartle Brothers Machine Company has been awarded a fourth star for its Army-Navy "E" Pennant. The company states:—

"Consistent and extensive operations in support of the war effort often involving as much as 97% of their capacity and covering literally scores of different items, account for this signal honor."



• *Compressor room, North Plant, Wyandotte Chemicals Corporation, Wyandotte, Michigan. Heart of the processing operations, source of power, gas and air compression, vacuum, and pumping requirements of the North Plant, its shops and salt wells. Here originates power used to transform salt, limestone and coal into alkalies and chemicals.*

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VITAL TO VICTORY TODAY—READY TO WORK FOR A GREATER TOMORROW

Old Timers Address New York Salesmen

The Salesmen's Association of the Paper Industry held one of its most largely attended and most interesting meetings of the season Monday of this week at the 400 Club, 43rd street and Fifth avenue, New York. Following the luncheon, H. F. Harrison, vice president and sales manager of the West Virginia Pulp and Paper Company and Joseph L. Fearing, two of the most outstanding old timers of the industry, addressed the gathering. Mr. Harrison spoke on old time trade customs, drawing on his fund of information covering a period of half a century. His remarks were greatly appreciated and he was listened to with rapt attention throughout his talk.

Mr. Fearing delivered the following prepared paper on salesmanship and sales management:—

Salesmanship and Salesmanagement

Before proceeding with my address, may I first pay tribute to an old friend, whose enthusiasm and foresight brought about the formation of this association? This man was also a prime mover in establishing the Import Committee in 1923 under your sponsorship. As we all know, he is none other than our first president, George K. Gibson of Mosinee.

May I also emphasize that any and all opinions I shall express today are purely my own, and that they do not necessarily reflect the views of any of my business associates.

When you honored me by asking that I say a few words about today's problems, you gave me a very big order:—so big that I can hardly scratch the surface in the twenty minutes allotted to me.

Perhaps one of my own experiences before the beginning of the 20th century will be interesting and helpful in an appraisal of the sales problems ahead of us today.

In the spring of 1897, after a college course in engineering and in law, (I was not much good in either), I was hired by the firm of W. H. Parsons and Company at 257 Broadway, New York City, as a clerk. They were paper merchants and exporters and they owned and operated two small newsprint mills in Maine—at Lisbon Falls and Bowdoin.

After four months learning some bookkeeping, my boss asked if I would like to try my hand at selling in New York city. Of course I said I would. "All right", said he, "Spend your mornings in the office and see what business you can get for us in the afternoon."

Luck was with me:—I soon landed some good tonnage—part of it for export. Two Japanese firms on lower Broadway were buying anything from needles and pins to locomotives. Japan had embarked in an industrial program in which she was to make remarkable progress in the next forty years. In 1897, however, she was unable to manufacture much of anything.

When the Japs Bought Paper

I soon discovered that these sons of Nippon were marvellous liars:—they could always buy from somebody else far below my prices. They bowed and smiled and said: "You too high. We buy beeg quantit-ee—make us low price, please." Being sure that my prices were right, I stood pat and kept on calling several times a week, only to be told each time with a smile, "You too high, please."

One day, however, with no explanation, I was given an order for two carloads of single-bender boxboard, coated white, one side—and an order for 2000 reams or more of sized book paper—all at the prices I had quoted. The boxboard order was placed by my employer at Brownville, N. Y.—with instructions to forward the rolls to Saugerties to be coated and sheeted by Martin Cantine. (Holley was probably a baby then.) Cantine was told to send the coated board, in sheets, to New York City—where it would be lithographed and die-cut by Ottmann and packed in cases for export. The 2000 reams of Book paper went to West Virginia Pulp and Paper Company—as my old friend and partner on today's platform, Frank Harrison, vice-president and a director of that fine company, will confirm.

What were the Japs planning to do with these articles? The answer is that they were manufacturing cigarettes—rolling and packing them by hand in Japan. (The cigarette machine had not been invented.) And of course they were using American tobacco. All of these articles—the lithographed coated board for the boxes; the book paper for the cigarette tips; and the tobacco—went by vessel to Japan around the southern end of South America, there being no Panama Canal. The only substance in a box of cigarettes actually made in Japan was the white cigarette wrapper which they manufactured on an imported paper machine, using rice-straw as raw material.

What did the Japs do with these cigarettes? They sent them back to the United States and sold them profitably, and did the same in many other countries. After paying our tariff, which was about 40% ad valorem, they undersold our domestic cigarettes. They could afford to do this because skilled labor was receiving only a fraction of the wages paid in America. Labor in cigarette manufacture in Japan got less than 25 cents a day in terms of United States money. Our cigarette machines put a quietus on this business later on.

When Exchange Affects Prices

I have told this story because of its implications in many problems of the future as I see them. Our huge debt—our high wages—and, therefore, our high cost of producing many articles that may hereafter be made in countries where labor is cheaper than it will be here and where living standards will doubtless continue far below our own, makes the average thoughtful person wonder where we are going to land. To me it seems quite possible that a policy of free trade or very low tariffs will hit some of our industries hard—emphatically so, if there is no effective world currency stabilization.

Nobody should forget what happened in 1931 when the British suddenly went off gold—and the pound sterling dropped almost overnight from $4.86 to $3.50 or less. This gave all countries in the so-called "Sterling Bloc" a terrific advantage over the United States. For instance, English textile mills could then buy cotton from Egypt and other Sterling bloc countries at a much lower cost than from our own cotton states. This forced the price of our southern cotton to a ruinously low figure:—it went overseas, as usual, for it had no other place to go. Much of it returned as textiles to our country in competition with our domestic product. These and other similar situations affecting United States industry created vast unemployment,

—throughout the **PAPER INDUSTRY...**

Diamond

- SODA ASH
- CAUSTIC SODA
- LIQUID CHLORINE
- SILICATE OF SODA

ALKALI

DIAMOND ALKALI COMPANY

PITTSBURGH, PA., *and Everywhere*

and were an important factor in the elections of 1932. In 1933 the United States followed the Sterling bloc and went off gold. In Britain's case there was no doubt about her legal right to debase her currency; but in our own case the legality was open to very serious doubt. However, by a close vote our Supreme Court decided that we could do so.

Meanwhile, other countries — including Scandinavia and Japan—had lowered their currency values enough to give them a continuing advantage. Our tariffs became no bar at all to imports from these countries: they could riddle our markets with impunity while we, on the other hand, could not export anything profitably because we could not afford to base our quotations on their devalued money.

This war has, as all of us know, created a period of world scarcities. It may take five or ten years to catch up with the demand for essential commodities; to rebuild shattered cities and nations; to restore their productive machinery and agriculture. Our older salesmen will not be deluded during this war or the period of rehabilitation. They know that overproduction and difficult markets will be here again some day, and they wish to be prepared.

The Emphasis on Salesmanship

What are sales managers and other executives doing about this? Are they preparing for it now? Are they planning to strengthen their sales forces? And how about the average salesman? Has he grown lazy during recent years? If so, let him mend his ways at once, if, indeed, it is not too late—for customers have long memories.

The good salesman is loyal both to his employers and to his customers. Thus he builds abiding friendships. The good salesman is sensitive. When Dr. Crane spoke to our association twenty-four years ago and gave us his "Ten Commandments of Salesmanship", one of them was, "Other yourself." To do this requires sensitivity on the part of a salesman; he must be able to see his customer's point of view as well as his own, and sympathize with his customer to an extent not inconsistent with his duty to his employer, for whom he should be ready to fight when fighting is necessary—and it frequently is! Such a salesman increases the respect which good customers always have for a sympathetic but upstanding personality.

Good salesmen, the best ones, have a keen sense of humor, which carries them through many a ticklish situation. Good salesmen keep abreast of the times:—they can talk intelligently on many subjects other than their own particular vocation. This type of salesman is usually welcome in the homes and families of customers. We all know what this means!

Sales managers who fail to keep in touch with their salesmen in a personal way, or fail to recognize real ability when praise and perhaps increased salary has been merited, will sooner or later "miss the boat." No salesman can do himself or his employer full justice if he is unhappy through lack of moral and financial recognition if he has clearly earned them.

There is an old axiom that "salesmen are born and not made." I have always taken this with several large grains of salt. It is true, of course, that some men are born with a natural flair for salesmanship, but in my long experience I have never yet seen a young man, aspiring to become a salesman, who failed to profit by some instruction in sales fundamentals. This is a very large subject—as we all know.

Good salesmen are needed more today than ever before. Reliable statistics indicate that there are less than four million available in the United States today, against about eight million before the war started and with a probable post-war need of ten million. Reconversion is here:—don't let anybody tell you it is not. New lines of products are planned by nearly every industry. Trained salesmen, as I have said, will be needed more than ever.

Every patriotic American wants, above all else, to see a peaceful world from now on and realizes that we must be prepared to accept some bitter with the sweet, before a workable peace can be made effective. On the other hand, we would all be shocked by any return to the apple selling and mass unemployment that prevailed in 1931 and 1932, and continued almost unabated until 1941. Such conditions breed Socialism, Nazism, Fascism, or whatever other name you care to use. All of them spell Totalitarianism in one form or another—and intelligent Americans do not want regimented labor or regimented industry. They desire that freedom of opportunity for which our founding fathers strove and which has made our nation great.

I firmly believe that our administration, our Senate Finance Committee, and our Congress, will ably protect the national interests.

Salesmen are the front line in a competitive market:—they are the main bulwark of all industry against the impact of difficult competition. Such a force, properly supported and trained, is a priceless asset. May the management of all companies, whether large or small, never overlook this fact.

Henderson Retires from M. and O.

Robert J. Henderson, vice-president in charge of traffic for Minnesota and Ontario Paper Company, retires from office on May 28, concluding nearly 29 years of continuous service for the same company. Succeeding him as traffic manager will be Franklin E. Hufford of Washington, D. C.

Mr. Henderson, who recently observed his sixty-fifth birthday, was born at Muskegon, Mich. After early experience with the Great Northern Railway, traffic department; Northern Pacific Railway, auditor's office, and Rock Island Lines, traffic department, he joined Minnesota and Ontario Paper Company on October 16, 1917, going almost immediately into transportation work. He was formally made traffic manager for the Company in 1926, and, after serving as director of traffic for several years, he was made a vice president.

Three rate men have worked with Mr. Henderson a large portion of the time he has been with Mando. The men and their years of service, are Willard Stowell, 20 years; A. T. Rinchlew, 18 years, and Claude D. Cooper, Jr., 16 years.

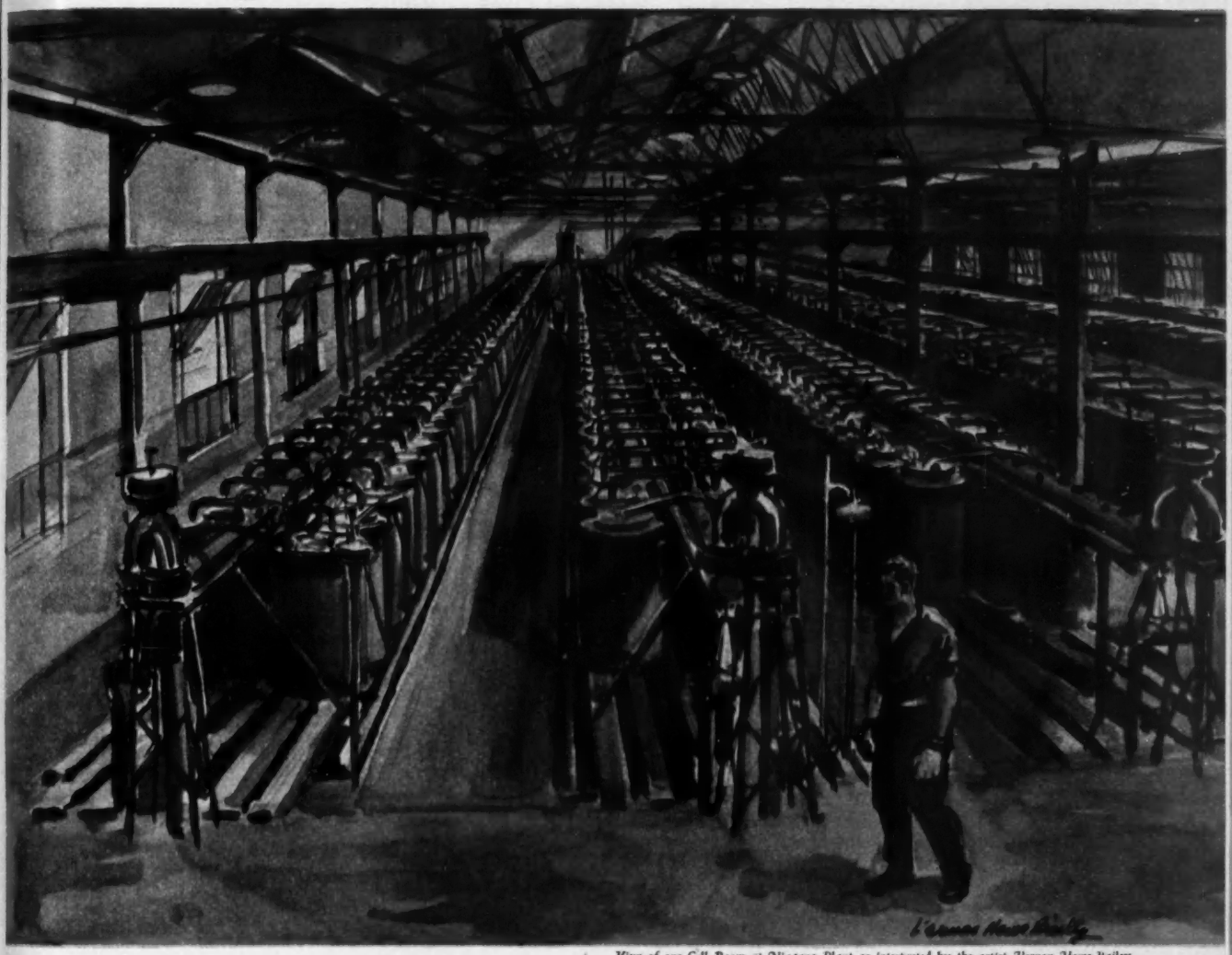
To Expand Cellophane Plant

[FROM OUR REGULAR CORRESPONDENT]

WILMINGTON, Del., May 18, 1945—E. I. duPont de Nemours & Co. today announced an application to the War Production Board for a major expansion at the cellophane plant in Clinton, Iowa. The expansion program, if approved by WPB, would require about a year to complete.

While a substantial part of the production of cellophane has been allocated to the war effort and it is indicated that war uses will continue to consume a major share of the output until the end of the Japanese campaign, the Du Pont Company is planning for greater post-war production capacity to meet anticipated demands for transparent packaging.

A Constant Flow



View of one Cell Room at Niagara Plant as interpreted by the artist, Vernon Howe Bailey

TYPICAL of the modern facilities with which Niagara Alkali Company is maintaining a constant flow of electro-chemical products for use in war production is the array of liquid chlorine cells illustrated here. Such up-to-the-minute equipment plus the efficient methods of control over quality established by Niagara's pioneering chemists are responsible to a great extent for Niagara's reputation as a quality producer in this field of chemical manufacture. Niagara's products are the result of thirty-six years of specialization and their reliability represents the untiring efforts of an experienced staff devoted to quality production. Look to Niagara for reliable chemical service.

Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK 17, N. Y.

CAUSTIC POTASH • CAUSTIC SODA • PARADICHLOROBENZENE • CARBONATE OF POTASH • LIQUID CHLORINE

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending May 19, 1945

STOCKS

	High	Low	Last
A. P. W.	4⅞	4½	4⅞
Armstrong Cork Co.	49¾	49¼	49⅝
Celotex Corp.	17¾	17	17⅜
Celotex Corp., pf.	20¾	20	20⅜
Certain-Teed Products Corp.	11½	11	11
Certain-Teed Products Corp., pf.	155	152⅝	155
Champion Paper & Fibre Co.	35	33½	35
Champion Paper & Fibre Co., pf.	115	112¾	114
Congoleum Nairn Co.	31⅛	30⅜	31
Container Corp. of America	29	27½	28½
Continental-Diamond Fibre Co.	12	11½	11⅝
Crown-Zellerbach Co.	24⅝	23¾	24⅜
Crown-Zellerbach Co., pf.	103¾	103	103
Dixie Cup Co.	25⅜	24¼	25
Dixie Cup Co.—A.	48½	48	48
Flintkote Co.	32⅜	31⅛	31⅜
Flintkote Co., pf.	108¼	107½	108
Robert Gair	6½	5⅜	6⅛
Robert Gair, pf.	17¼	17	17¼
International Paper Co.	29⅜	26	28⅜
International Paper Co., pf.	97	91	97
Johns-Manville Corp.	122½	115	122½
Johns-Manville Corp., pf.	...	...	...
Kimberly-Clark Corp.	47½	45	47½
Mac Andrews & Forbes	33	33	33
Mac Andrews & Forbes, pf.	...	...	...
Masonite Corp.	46¼	46	46
Mead Corp.	15⅞	14	15⅞
Mead Corp., pf. A—6%	...	...	...
Mead Corp., pf. B—5½%	99¼	97½	99¼
National Container Corp.	16½	15⅝	16½
Paraffine Companies, Inc.	64½	64½	64½
Paraffine Companies, Inc., pf.	...	...	...
Rayonier, Inc.	18¼	17⅞	18⅛
Rayonier, Inc., pf.	35⅝	35	35⅝
Ruberoid Co.	39¼	37½	39¼
Scott Paper Co.	48¼	47¾	48¼
Scott Paper Co., pf.	112	110½	110½
Sutherland Paper Co.	32¼	32	32¼
Union Bag & Paper Corp.	17	16	17
United Paperboard Co.	7⅛	7⅛	7⅛
U. S. Gypsum Co.	88¾	85¾	88
U. S. Gypsum Co., pf.	190	190	190
West Virginia Pulp & Paper Co.	26	25	26
West Virginia Pulp & Paper Co., pf.	111	110½	110½

BONDS

Abitibi Pulp & Paper Co. 5s '53	107¾	106½	107½
Celotex Corp. 3¾s '55	104⅞	104	104⅞
Certain-Teed Products Corp. 5½s '48	...	...	...
Champion Paper & Fibre Co. 4¾s '50	...	...	...
International Paper Co. 6s '55	110	110	110
International Paper Co. 5s '47	104½	104½	104½
Mead Corp. 3½s '53	...	...	...
West Virginia Pulp & Paper Co. 3s '54	...	...	...

New York Curb Exchange

High, Low and Last for Week Ending May 19, 1945

STOCKS

	High	Low	Last
Great Northern Paper Co.	38	37½	38
Hummel-Ross Fibre Corp.	7⅞	7¾	7⅞
St. Regis Paper Co.	6	5¾	5⅞
St. Regis Paper Co., pf.	...	...	...
Taggart Corp.	6	6	6

BONDS

American Writing Paper Co. 6s '61	102⅞	102½	102⅞

To Exchange Hinde-Dauch Stock

The Hinde and Dauch Paper Company has informed holders of $5 convertible preferred stock that they may tender them in exchange for new $4 cumulative preferred stock share for share at the Central National Bank of Cleveland until next Tuesday. The new preferred stock will be exchangeable on the basis of one share for 3⅓ common shares.

An underwriting group headed by Glore, Forgan & Co. and Maynard H. Murch & Co. has underwritten the new preferred stock.

Johns-Manville Votes Dividend

The Johns-Manville Corporation announced the declaration of a 75-cent dividend on the common stock for payment on June 8. The previous payment was 50 cents on March 12 this year, while disbursements of 50 cents each were made in March, June and September and $1.25 in December, 1944.

International Sales Up for Quarter

Gross sales of the International Paper Company and subsidiaries for the first quarter of 1945 amounted $55,980,928 as compared with $55,306,947 for the same period in 1944. After other income was added and expenses and provisions for taxes were deducted net profit for the quarter was off to $2,110,243 from $2,116,706 of the first quarter in 1944.

In submitting his report for the quarter Chairman Richard J. Cullen made public the following detailed statement of profit and loss, subject to audit at the end of the year.

	Three Months Ended March 31, 1945	Three Months Ended March 31, 1944
SALES AND OTHER INCOME:		
Gross sales, less returns, allowances and discounts	$55,980,927.73	$55,306,946.72
Other income—net	1,685,986.53	1,515,003.71
	$57,666,914.26	$56,821,950.43
COST AND EXPENSES:		
Cost of sales:		
Pulpwood, labor, materials, etc.	$34,602,530.82	$33,171,997.48
Maintenance and repairs	3,620,966.73	2,963,921.36
Taxes (other than income taxes)	1,004,728.34	963,572.80
Outward freight and delivery expenses	4,959,933.74	5,049,650.57
Selling, general and administrative expenses	1,642,020.94	1,690,036.13
	45,830,180.57	43,839,178.34
	$11,836,733.69	$12,982,772.09
DEDUCTIONS:		
Interest on funded debt	$ 598,146.20	$ 623,343.13
Interest on other debt	466.02	3,381.25
Amortization of debt discount and expense	44,326.62	52,491.36
Depreciation	2,761,830.53	2,973,870.06
Depletion	233,930.16	226,023.22
Dividend on preferred stock of subsidiary	1,712.50	1,712.50
	3,640,412.03	3,880,821.52
	$ 8,196,321.66	$ 9,101,950.57
Less: Provision for Taxes Based on Income:		
U. S. Federal taxes:		
Normal	$ 948,610.00	$ 930,012.00
Excess profits (net)	4,465,276.00	5,773,128.00
State taxes	119,269.00	130,062.00
Canadian and other foreign taxes	330,562.11	181,579.54
	5,863,717.11	7,014,781.54
	$ 2,332,604.55	$ 2,087,169.03
ADD: Post-War Excess Profits Tax Credit:		
U. S. Federal	$ 459,030.00	$ 603,576.00
Less: Credit for debt retirement, applied to reduce excess profits tax above	125,001.00	262,638.00
	$ 334,029.00	$ 340,938.00
Canadian	34,785.55	.....
	368,814.55	340,938.00
	$ 2,701,419.10	$ 2,428,107.03
Less: Earnings of foreign subsidiaries before interest on obligations held by International Paper Company—transferred to Reserves	591,175.71	311,400.75
NET PROFIT	$ 2,110,243.39	$ 2,116,706.28

The above figures are subject to audit and final adjustment at December 31st (end of fiscal year).

Issues Notice to Abitibi Shareholders

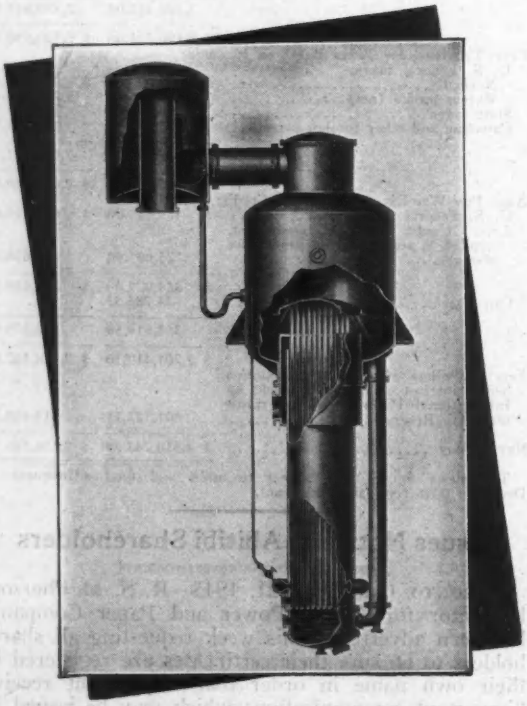
[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 21, 1945—R. S. McPherson, liquidator for Abitibi Power and Paper Company, has been advertising this week requesting all shareholders to be sure their certificates are registered in their own name in order that they might receive "important communications which may be issued in the near future." This is interpreted as meaning that the reorganization plans have been agreed to by all parties and the completion of the work will not now be long delayed.

It is understood that approval of the wording of the reorganization plan was obtained at a series of meetings of the various committees representing security holders and creditors last week and that as soon as the wording changes agreed on can be in-

GENERAL AMERICAN *A good*

GENERAL AMERICAN has set itself the high goal of manufacturing the finest equipment in every field it serves. To that end we have engaged the best engineering, research and production minds we know, and have provided them with every facility for better work. The results are becoming more and more obvious every month. Expect big things of General American—*a good name to remember!*



CONKEY EVAPORATORS

Engineers should remember that the features which set new standards of Conkey evaporator performance are those which will assure profitable pulp mill operation, now, or in the post-war period.

Designed by engineers experienced in the various pulp mill processes, they provide for maximum accessibility, minimum entrainment losses, high heat transfer and entirely automatic control. Each unit will give long-time, trouble-free operation with low maintenance and supervision costs.

RECAUSTICIZING PLANTS

All major units — slackers, causticizers, thickeners, filters and lime-burning kilns — are manufactured in our shops. They are engineered and supervised by a staff of engineers and workmen familiar with the problems of recausticizing in Pulp Mills throughout the country. Let us study your problem. This service may result in recommendations which will produce lower operating costs.

name to remember

ALL KINDS OF PLATE-FABRICATED EQUIPMENT, LARGE OR SMALL

General American's *Plate & Welding Division* at Sharon, Pa., has the experience and the equipment to fabricate anything made of carbon, stainless and alloy steels, Everdur, aluminum and other special alloys, either welded or riveted. It has complete X-ray and heat-treating facilities, stress-relieving furnaces, equipment and laboratories for testing to API-ASME, ASME and other codes, and a large field erection department for either foreign or domestic work.

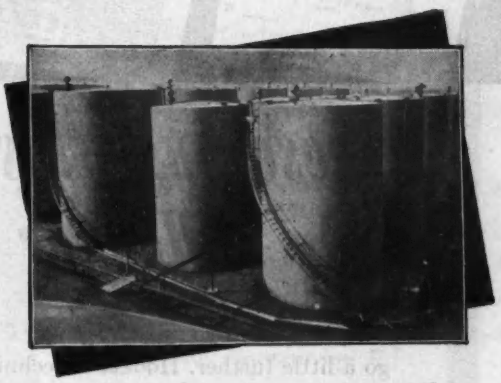
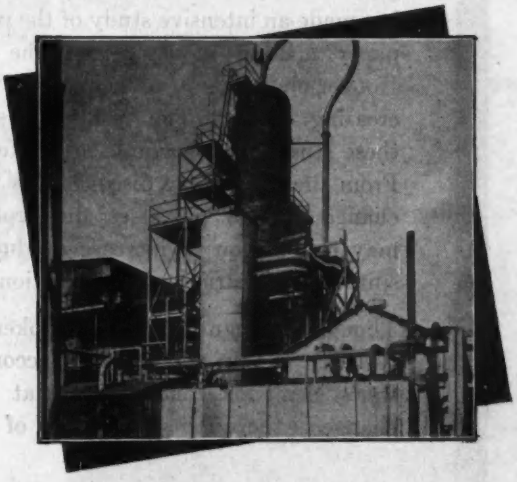


Plate & Welding products include hundreds of items such as accumulators, autoclaves, air receivers, bins, car tanks, boiler drums, condensers, columns, crystallizers, dissolvers, digesters, heat exchangers, kilns, mixing and blending tanks, fractionating towers, stacks, storage tanks of all sorts and sizes, stills, scrubbers, large-diameter welded or riveted pipe, and refinery equipment including all types of pressure vessels. Whatever your needs for plate-fabricated equipment, large or small, the Plate & Welding Division is prepared to help you.



General American has exceptionally large manufacturing facilities—a staff of internationally-recognized engineers and scientists, and extensive research and development laboratories. This combination of facilities is, we believe, unmatched elsewhere in America. We invite you to call on us for any sort of information you may wish. *Address:*

GENERAL AMERICAN

TRANSPORTATION GATX GENERAL AMERICAN **CORPORATION**

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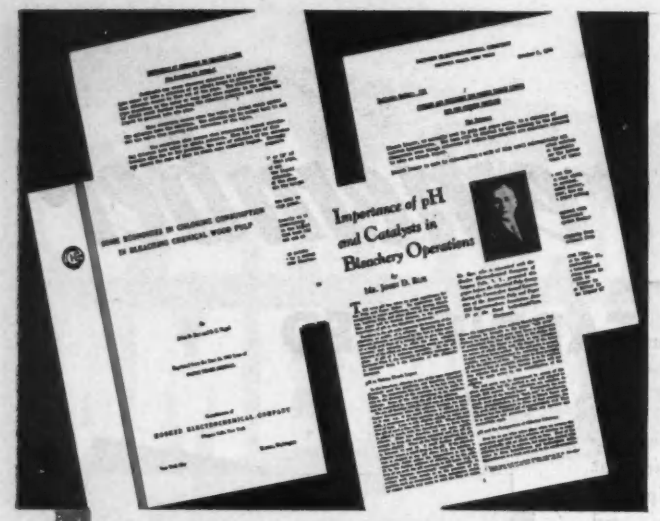
General Sales Offices: 515a Graybar Bldg., New York 17, N. Y. ● ***Works:*** Sharon, Pa., and Louisville, Ky.

Sales Offices: Louisville, Chicago, Sharon, Cleveland, Pittsburgh, St. Louis, Salt Lake City, San Francisco, Tampa, Washington, D. C.



Economies in Cl_2 Consumption in Bleaching Chemical Wood Pulp **BULLETIN 240**

Process and Equipment for Making Bleach Liquor for Use Without Settling **BULLETIN 201**

Prevention of Suck-backs in Cl_2 Lines **BULLETIN 208**

Importance of pH and Catalysts in Bleaching Operations **BULLETIN 236**

These Bulletins are Not Substitutes for Hooker Chemicals, but...

They may help you make Hooker Chemicals go a little further. Hooker's Technical Staff has made an intensive study of the pulp and paper making industry and the use of Hooker chemicals in reducing costs and increasing quality. The results of some of these studies are available in printed form. From them you may discover how a slight change in your processes and procedures, may enable you to increase production in spite of the restrictions of allocation.

Though the quantities of the Hooker chemicals we can ship you will vary according to war's demands, one thing that doesn't change is the quality standards of Hooker chemicals. Hooker specifications for quality are the same today as they were before the war. In some cases, due to improved manufacturing techniques, quality has even improved.

The Hooker Bulletins listed above and many others may be of interest to pulp and paper makers. A request on your letterhead will bring copies to you.

HOOKER ELECTROCHEMICAL COMPANY

4 UNION STREET NIAGARA FALLS, N. Y.

NEW YORK, N. Y. • TACOMA, WASH.
WILMINGTON, CALIF.

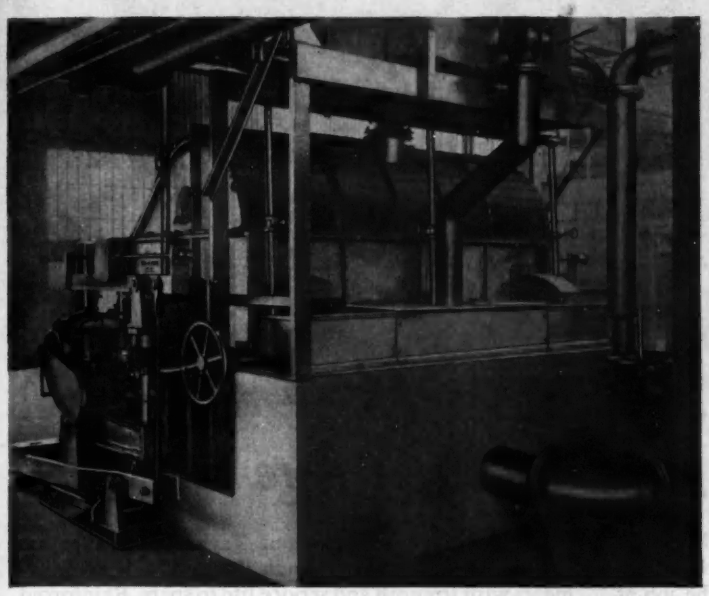
ARMY E NAVY

HOOKER CHEMICALS

5274

Caustic Soda Chlorine Sodium Sulfide
Bleaching Powder Muriatic Acid

The ROLL-O-FINER



Typical installation view of Roll-O-Finer in U. S. Mill

Positive fibre treatment by a continuous recycling of stock.

Positive control of roll pressure.

Handles free stock at high consistency.

Production rate determined by treatment required.

Basalt Lava stone treatment ideal for high strength development.

Suitable for treatment of fibre for insulating board stock.

Especially adapted for treatment of screenings.

Design provides for low submergence load with resultant low H.P.

Bedplate accessibility.

Furnished in single or multiple units in series.

Compact, rugged construction.

Size of refiner roll: 48 inches diameter, x 96 inch face.

Ask for Roll-O-Finer Bulletin

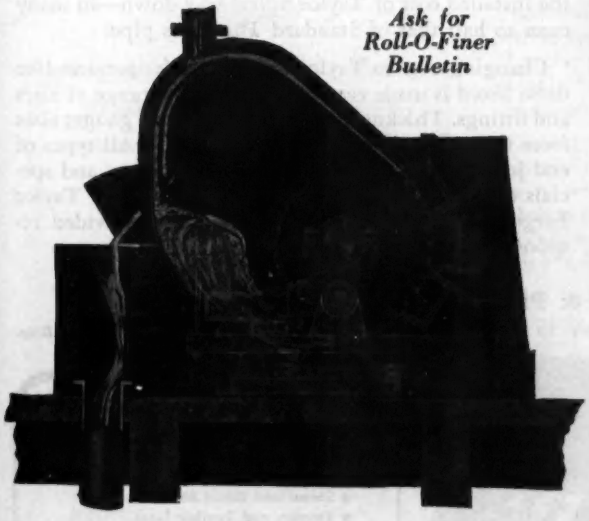
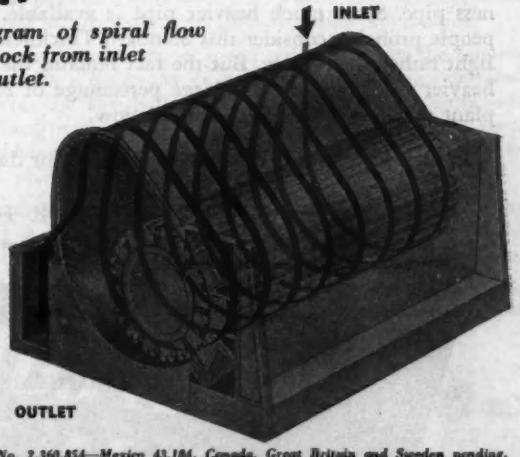


Diagram of spiral flow of stock from inlet to outlet.



U. S. Patent No. 2,360,854—Mexico 45,184. Canada, Great Britain and Sweden pending.

PAPER and INDUSTRIAL APPLIANCES, INC.
122 EAST 42nd STREET NEW YORK, N. Y.

Anyhow, the more you properly use, the more you save—

In the interest of conserving steel and man-hours (to say nothing of money) no one can afford in times like these to use heavier pipe than is needed for the job at hand. Or to put it another way, it will pay you, whenever a piping job comes up, to make sure that you're not using heavier and costlier pipe than is needed. Too often industry *does* use heavier pipe than needed, and here's why:

The pipe ordinarily used in most plants for every-day moderate and low pressure services is Standard Thickness pipe. Since much heavier pipe is available, most people probably consider this Standard Thickness pipe light rather than heavy. But the fact remains that it is heavier than needed for a large percentage of run-of-plant uses—uses like those listed below.

In such services it is heavier than needed for the simple reason that light-but-strong Taylor Spiral Pipe has fully proved its ability to handle these every-day requirements with strength and service life to spare. Reinforced from end to end by the sound, spiral welded seam, Taylor Spiral Pipe gives you greater strength in proportion to wall thickness than any other type of pipe made. And this light weight, with ample strength, cuts the installed cost of Taylor Spiral way down—in many cases to half that of Standard Thickness pipe.

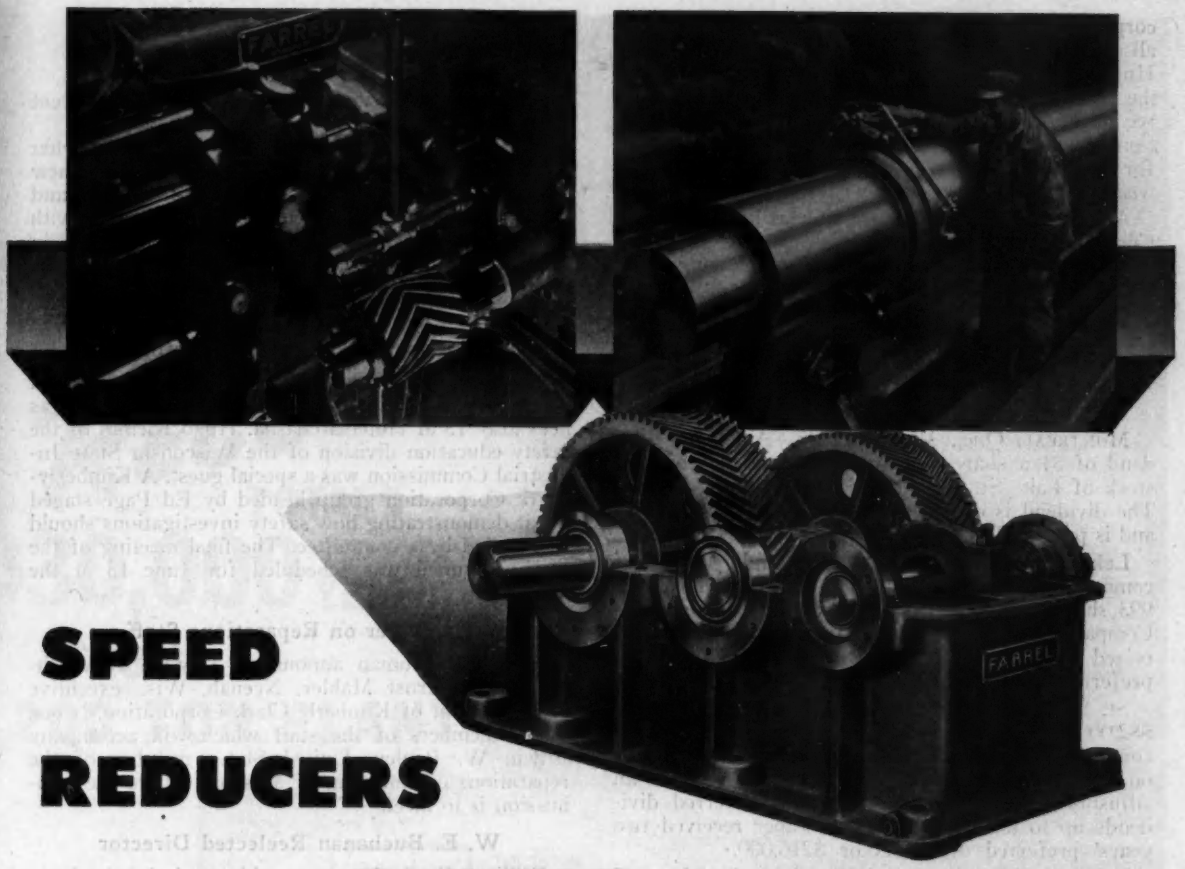
Changing over to Taylor Spiral Pipe for services like those listed is made easy by the complete range of sizes and fittings. Thicknesses range from 18 to 6 gauge; sizes from 6" to 42"; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and specials or fabricated assemblies, are produced by Taylor Forge, assuring a complete service and undivided responsibility.

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P. O. Box 485 ★ New York Office: 50 Church St. ★ Philadelphia Office: Broad Street Station Bldg.

CHANGE TO TAYLOR SPIRAL PIPE FOR:

- High and Low Pressure Water Lines
- Low Pressure Steam and Air Lines
- Steam and Diesel Exhaust Lines
- Vacuum and Suction Lines
- Blower Piping
- White Water Lines
- Pulp Stock Lines
- Paper Stock Lines
- Alkaline Lines
- Size Lines
- Swing Pipe
- Spray Pond Piping



SPEED REDUCERS WITH A DOUBLE BACKGROUND

FARREL
The Gear with a Backbone

As one of the principal producers of gears and speed reducers in the United States, Farrel's specialized knowledge of gear drives for paper machinery is as extensive as their knowledge of rolls. To the prospective purchaser of paper mill drive equipment, this double background provides assurance that Farrel can specify, from experience, the most efficient drive for the particular application.

The herringbone gears used in these speed reducers are of the famous Farrel-Sykes *Gear with a Backbone* design. Instead of being separated by a center groove, the two helices are joined—forming continuous teeth across the face of the gear. The place where the helices meet is called the *backbone* because it provides extra strength and load-carry capacity in small space.

High precision gear generation, rigid and accurately ground shafts properly mounted in roller bearings, and heavy section cases that hold rotating elements in precise alignment assure long, trouble-free life.

Farrel speed reducers are available in a complete range of sizes, for any capacity, with ratios up to 300:1. For complete information write for catalog No. 438.

FARREL PAPER MILL MACHINERY

ROLLS: Chilled Iron, Dry Sand, Meehanite, Alloy Iron, Steel, Chromium Plated
FOR: Calender Stacks
Board Calenders
Super Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
Smoothing Rolls
Coating Rolls
Creping Rolls
Plater Rolls
Cutting Rolls
Paraffining and Waxing Rolls
Saturating Rolls
Silicating Rolls
Miscellaneous Special Purposes
CALENDERS: Paper and Board
GRINDING MACHINES: Roll
CALIPERS: Roll
GEARS, CUT: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
SPEED REDUCING GEAR UNITS
SPEED INCREASING GEAR UNITS
FLEXIBLE COUPLINGS

FARREL-BIRMINGHAM COMPANY, INC.
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Farrel-Birmingham

corporated into the printed plan, representatives of all the committees are expected to meet with the Hughes Committee (appointed some months ago by the Ontario Government) who must also approve and recommend the plan before it can be put into operation. It was believed that this meeting was scheduled for some time this week, but definite information was not available at time of writing.

As the final plan is along the line set by the Hughes Committee in their report, no delay is expected in obtaining their recommendation. Completion of all meetings before the end of June this year is believed to be the objective of the various groups.

Lake St. John Votes Dividend

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 21, 1945—An initial dividend of $1 a share was announced on the common stock of Lake St. John Power and Paper Company. The dividend is designated as an "interim" dividend and is payable June 9 to holders of record June 1.

Lake St. John has 100,000 no-par-value shares of common stock authorized and issued of which 81,993 shares are owned by St. Lawrence Paper Mills Company Limited, which also owns all of the authorized and issued 18,000 non-cumulative 6 per cent preferred shares of $100 par value of Lake St. John.

St. Lawrence Paper Mills will thus receive nearly $82,000 on account of the dividend on Lake St. John common, It will also receive $108,000 in dividends on the preferred stock for 1945. Last year, due to an adjustment to bring Lake St. John preferred dividends up to date, St. Lawrence Paper received two years' preferred dividends or $216,000.

Lake St. John common is listed on the Montreal Curb Market, and this year it has advanced to $35 a share. Its 1945 low was 24. Last year it ranged between 16½ in January and 24 in December. In 1943 its low was 10 and in 1942 it was 5¼.

Mead Corp. Asks Exemption

The Mead Corporation of Chillicothe, Ohio, applied to the commission for exemption for itself and its subsidiaries from the provisions of the Holding Company Act. It argued that it "is only incidentally a public utility holding company and is primarily engaged and interested in the business of manufacturing and selling paper," and does not derive "any material part of its income from its subsidiaries," the Manistique Light and Power Company and the Upper Michigan Power and Light Company.

United Paperboard Profits Up

The United Paperboard Company, for the nine months to March 31, reports a net income of $93,548, or 23 cents a common share, against $53,852, or 6 cents a share, for corresponding period of previous year.

Great Northern Profits Off

The Great Northern Paper Company and wholly owned subsidiaries for the March quarter reports a net profit of $269,668, or 27 cents a share, against $448,426, or 45 cents a share, last year.

TO OPEN NEW MILL IN JUNE

(Continued from page 7)

permit communications between trains to prevent wrecks.

Scientific weather forecasts may tell farmers what to plant in wet and dry years. He also discussed new medical compounds such as the sulfa drugs and penicillin, and new insecticides. Of DDT, used with other insecticides to control a typhus epidemic in Naples, he said: "It was the first time in history that a typhus epidemic was brought under control immediately."

Foremen Hold Dinner Meeting

The monthly foremen's dinner meeting of the Twin City Safety Council, Neenah and Menasha, Wis., was held May 15 at Hotel Menasha. Hugo Klemm of the safety education division of the Wisconsin State Industrial Commission was a special guest. A Kimberly-Clark Corporation group headed by Ed Page staged a skit demonstrating how safety investigations should be handled by a committee. The final meeting of the Safety Council was scheduled for June 13 at the Valley Inn, Neenah.

E. Mahler on Reparations Staff

President Truman announced May 15 at Washington that Ernst Mahler, Neenah, Wis., executive vice president of Kimberly-Clark Corporation, is one of 20 members of the staff which will accompany Edwin W. Pauley, United States member of the reparations commission, to Moscow, where the commission is to meet.

W. E. Buchanan Reelected Director

William E. Buchanan, president of the Appleton Wire Works, Appleton, Wis., was reelected to the board of directors of the Chicago & North Western Railway Company for a three-year term, at the annual meeting of the stockholders in Chicago on Tuesday, May 15.

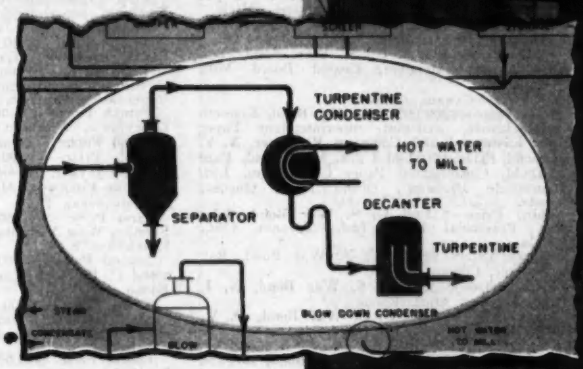
WPB Rules Newsprint Still Available

Despite the shortage of newsprint and the need for its conservation, chiefly for printing, it may still be used for such historical purposes as protective packing and wrapping, the War Production Board has ruled.

Under currently issued Direction 3 to Conservation Order M-241, which restricts production and establishes a reserve of paper and paperboard, any person whose use of newsprint is not controlled by a WPB printing, publishing or conversion order may obtain it under specified conditions. A purchaser must certify to the seller and WPB, subject to the United States Criminal Code, that he is permitted to order and accept newsprint and that there is no WPB order controlling his proposed use, which must be stated, WPB Paper Division officials explained.

A recent amendment to Order M-241 required all purchasers of newsprint to certify that the paper purchased would be used or delivered, or that it was required to replace newsprint used or delivered, under one or more of the WPB's eight printing and publishing limitation orders or Conservation Order M-241-a. This prevented some legitimate long-standing users from securing this type of paper. Officials pointed out that now, under the new direction, use of newsprint for protective packing and wrapping is permitted, provided proper certification is made.

TURPENTINE RECOVERY TOTALS $30,000 YEARLY FROM 200 TON PLANT



Yes, that is a conservative estimate of what a sulfate mill of this size, equipped with a turpentine recovery system, can now realize on 300 days operation . . . many mills are exceeding this sum by a substantial margin.

The recovery unit, engineered and constructed by Foster Wheeler, includes a cyclone separator, turpentine condenser and turpentine decanter. It is easy to install on existing mills and operating records show uniformly low maintenance and high efficiency.

Turpentine vapors and steam released through venting of the digester are first condensed; then the turpentine is separated out from the condensate and heat recovered from the steam.

Four units have been placed in operation during the past eight months. In every case the turpentine recovered during the first six months more than offset the costs of the installation.

FOSTER WHEELER CORPORATION
165 BROADWAY NEW YORK 6, N. Y.

FOSTER FW WHEELER

Judges Name Bolton Divisional Winners

In May of last year at the Chicago Convention of the American Pulp and Paper Mill Superintendents Association, Inc. the John W. Bolton & Sons Company offered to sponsor a contest for superintendents of pulp and paper mills in this country and Canada and to offer prizes for the best articles written on selected subjects. The trustees agreed to the plan and a "Bolton Award" committee was appointed to arrange for the contest. The subjects selected by the committee, in joint session with the officials of the Bolton company, were as follows:

How to Promote Better Relations Between Workers and their Immediate Foremen.

The Part a Superintendent Should Play in Developing and Sponsoring Harmonious and Cooperative Employer-Employee Relations.

How Can the Superintendent Encourage His Men to Suggest Ideas for More Efficient Operation.

The contest was intended, through the superintendents association, to include superintendents and foremen in North American paper mills. Circulars were sent to mills throughout this country and Canada and mill managements cooperated in seeing that their employees were fully informed about the contest.

The contest closed January 1, 1945, and the articles submitted were sent to the divisional judges which were selected by the respective chairmen. The judging of these divisional papers has now been completed and the results are given below.

The ten first-prize winning articles are now being submitted to the national judges and it is hoped that these judges will be able to report their findings to George W. Cragie, Secretary-Treasurer of the association in time for the meeting of the association's trustees on June 8.

CONNECTICUT VALLEY DIV.

First Prize—$200.00 U. S. War Bond, Robert W. Pattison, Supt., Eagle A Mill #19, American Writing Paper Corporation, Holyoke, Mass.

Second Prize—$100.00 U. S. War Bond, Sidney A. Brown, Manchester, Conn.

Third Prize—$25.00 U. S. War Bond, Frank H. Williams, Dalton, Mass.

Fourth Prize—$25.00 U. S. War Bond, Walter F. Hoffman, Fitchburg Paper Company, Fitchburg, Mass.

Fifth Prize—$25.00 U. S. War Bond, Matthew V. Horgan, Holyoke, Mass.

Sixth Prize—$25.00 U. S. War Bond, Arthur L. Hobday, West Springfield, Mass.

MIAMI VALLEY DIV.

First Prize—$200.00 U. S. War Bonds, Dean W. Newell, Port Clinton, Ohio.

Second Prize—$100.00 U. S. War Bond, G. R. Williams, Carlisle Place, Chillicothe, Ohio.

Third Prize—$25.00 U. S. War Bond, Sam W. Yates, Wyoming, Ohio.

MICHIGAN DIV.

First Prize—$200.00 U. S. War Bond, Gordon Morseth, Detroit, Mich.

Second Prize—$100.00 U. S. War Bond, William H. Astle, Beater Room Supt., Michigan Paper Company, Plainwell, Mich.

Third Prize—$25.00 U. S. War Bond, Arthur Thero, printing dept. superintendent, Detroit Sulphite Pulp and Paper Company, Detroit, Mich.

Fourth Prize—$25.00 U. S. War Bond, Joe Waber, Rex Paper Company, Kalamazoo, Mich.

Fifth Prize—$25.00 U. S. War Bond, James A. Dean, Plainwell, Mich.

Sixth Prize—$25.00 U. S. War Bond, Ben Weesner, superintendent, Coated Board Mill, Chicago, Ill.

NEW YORK—CANADIAN DIV.

First Prize—$200.00 U. S. War Bond, Kenneth J. Mackenzie, assistant superintendent Paper Mills, Eastman Kodak Company, Rochester, N. Y.

Second Prize—$100.00 U. S. War Bond, Paul A. Dodd, Consolidated Paper Corporation, Ltd. (Laurentide Division), Grand Mere, Quebec, Canada.

Third Prize—$25.00 U. S. War Bond, John Buss, Provincial Paper Ltd., Toronto, Ont., Canada.

Fourth Prize—$25.00 U. S. War Bond, Ray A. Stocker, Cohoes, N. Y.

Fifth Prize—$25.00 U. S. War Bond, N. I. Howe, Dryden, Ont., Canada.

Sixth Prize—$25.00 U. S. War Bond, O. V. Marx, Astoria, N. Y.

NORTHEASTERN DIV.

First Prize—$200.00 U. S. War Bond, Edward T. Jones, Berlin, N. H.

Second Prize—$100.00 U. S. War Bond, O. H. Messecar, Fraser Papers, Ltd., Madawaska, Me.

Third Prize—$25.00 U. S. War Bond, Oscar E. Anderson, Livermore Falls, Me.

Fourth Prize—$25.00 U. S. War Bond, Frank W. Roberts, S. D. Warren Company, Cumberland Mills, Me.

Fifth Prize—$25.00 U. S. War Bond, William LaPointe, International Paper Company, Chisholm, Me.

Sixth Prize—$25.00 U. S. War Bond, James M. Wishart, Rumford, Me.

NORTHWESTERN DIV.

First Prize—$200.00 U. S. War Bond, Cecil C. Parvin, Port Edwards, Wis.

Second Prize—$100.00 U. S. War Bond, William Herriott, Neenah, Wis.

Third Prize—$25.00 U. S. War Bond, Robert Caple, International Falls, Minn.

Fourth Prize—$25.00 U. S. War Bond, H. E. Niermeyer, Neenah, Wis.

Fifth Prize—$25.00 U. S. War Bond, C. H. McCarthy, Consolidated Water Power & Paper Company, Stevens Point, Wis.

Sixth Prize—$25.00 U. S. War Bond, Carl Magnus, Wausau, Wis.

PACIFIC COAST DIV.

First Prize—$200.00 U. S. War Bond, R. B. Haight, Riverview Road, Camas, Wash.

Second Prize—$100.00 U. S. War Bond, Jack V. Savage, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Wash.

Third Prize—$25.00 U. S. War Bond, H. E. Burrell, Camas, Wash.

Fourth Prize—$25.00 U. S. War Bond, W. C. Gigler, Crown Willamette Paper Company, Camas, Wash.

Fifth Prize—$25.00 U. S. War Bond, L. R. Hartman, Everett, Wash.

Sixth Prize—$25.00 U. S. War Bond, Austin Wyman, Port Angeles, Wash.

PENNSYLVANIA - NEW JERSEY - DELAWARE DIV.

First Prize—$200.00 U. S. War Bond, Harrison T. Beardsley, Johnsonburg, Pa.

Second Prize—$100.00 U. S. War Bond, S. Carroll Wentz, Spring Grove, Pa.

Third Prize—$25.00 U. S. War Bond, Oscar Stamets, Riegel Paper Company, Riegelsville, N. J.

SOUTHERN DIV.

First Prize—$200.00 U. S. War Bond, E. A. Newman, superintendent, Crossett Paper Mills, Crossett, Ark.

Second Prize—$100.00 U. S. War Bond, John Smith, Brunswick, Ga.

Third Prize—$25.00 U. S. War Bond, James C. Stinson, superintendent board division, Crossett Paper Mills, Crossett, Ark.

Fourth Prize—$25.00 U. S. War Bond, L. L. Lapeyrouse, Southern Kraft Division of International Paper Company, Mobile, Ala.

Fifth Prize—$25.00 U. S. War Bond, John William Joyner, Foreman, board mill department, Flintkote Company, Meridian, Miss.

SOUTHEASTERN DIV.

First Prize—$200.00 U. S. War Bond, C. A. Shoudy, West Virginia Pulp and Paper Company, Charleston, S. C.

Second Prize—$100.00 U. S. War Bond, Raymond C. Bullock, Ecusta Paper Company, Pisgah Forest, N. C.

Third Prize—$25.00 U. S. War Bond, Curt A. Young, mechanical engineer, charge of development, West Virginia Pulp and Paper Company, Charleston, S. C.

Fourth Prize—$25.00 U. S. War Bond, Howard E. Wehr, assistant general superintendent, The Mead Corporation, Heald Division, Lynchburg, Va.

Fifth Prize—$25.00 U. S. War Bond, C. R. P. Cash, Canton, N. C.

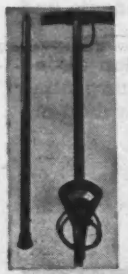
Sixth Prize—$25.00 U. S. War Bond, W. P. Guenther, plant engineer, The Mead Corporation, Lynchburg, Va.

B. C. Promotes Geo. Melrose

George P. Melrose, assistant chief forester for the British Columbia government, has been appointed assistant deputy minister of lands, according to an announcement by E. T. Kenney, B. C. minister of lands and forests

Other personnel changes announced in the general reorganization of the department which followed legislation this spring creating a separate department of forests, included the appointment of C. C. Ternan, assistant district forester in Vancouver, to the Victoria head office post of assistant chief forester.

STEAM PRESSURE
DOES NOT GUARANTEE
ROLL TEMPERATURES



Due to water-logging or other causes, the surface temperature of the rolls in the drying train may vary widely even when steam pressures are maintained. Play safe. Provide your men with Cambridge Surface Pyrometers. With this rugged, easy-to-use instrument, it is but a moment's work to *accurately* determine the surface temperature of a still or moving roll.

Write for bulletin 194-SPT

The Cambridge is made in a hand model or with an extension to reach those hard-to-get-at places.

CAMBRIDGE INSTRUMENT CO., INC.
3732 Grand Central Terminal, New York 17, N. Y.

CAMBRIDGE
SURFACE PYROMETERS

Use Sugar Cane Waste

Experiments over the past four years in the manufacture of cardboard from sugar cane trash proved so successful in India that a small commercial plant has been established at Ravalgaon, says a report to the Department of Commerce. The plant is equipped with pressure digesters, edge runners, beaters, screw presses, and calenders, states the foreign press. Well cut trash is treated in the pressure digesters with sodium hydroxide or a mixture of carbonate and lime for about ten hours at a pressure of from 25 to 30 pounds per square inch, after which it is washed free of alkali and passed through an edge runner. If intended for wrapping paper, the pulp is again subjected to the action of the beater. When the pulp has been pressed in the screw presses, the resulting cardboard is dried and pressed in calenders, then cut to size and packed for marketing.

Switzerland Lacks Paper

The year 1945 threatens to initiate Switzerland into the sisterhood of paper hungry nations, says a report to the Department of Commerce. Only last year reports told of an abundance of paper far in excess of domestic demand but today the picture is radically changed and the Government ruled that during March, April, May and June of this year paper consumers may be allotted only 80% of their normal needs with possibly further reductions later in the year. Furthermore, it is pointed out, the paper industry may deem itself lucky if it succeeds in securing the 320,000 sters of wood earmarked for it in 1945—normally the industry consumes 450,000 sters of wood annually. There are the results, what of the causes? In 1945 Swiss forests will have to supply more wood for fuel, and lack of fodder makes it necessary to feed cellulose to horses.

Newspapers have already warned their readers that they will have to reduce their size, especially as a further reduction in newsprint quotas is expected before the end of the year. Apparently Switzerland had previously agreed to export 6,000 metric tons of newsprint to France, at the rate of 1,000 tons per month, which may explain in part the suddenness of the shortage.

Employed Minors

Pleading guilty to employing minors in a hazardous occupation, the Lorraine Paper Box Corporation, of 543 Union street, Brooklyn, was last week fined $1000 by Federal Judge Grover M. Moscowitz in Eastern District Court, Brooklyn. In levying the $1000 fine, Judge Moscowitz said:

"This is a very serious violation, so serious that Congress has authorized the Courts to fine violators $10,000, and this Court could so fine you if it saw fit."

Alfred S. Kochman, president of the concern, entered the guilty plea. The corporation was charged in nine counts of a criminal information with having employed several sixteen and seventeen year old boys as helpers on delivery trucks, which Katharine F. Lenroot, Chief of the Children's Bureau, U. S. Department of Labor, has designated as a hazardous occupation.

The concern was investigated by inspectors from the staff of Arthur J. White, Regional Director of the Wage and Hour and Public Contracts Divisions, who said:

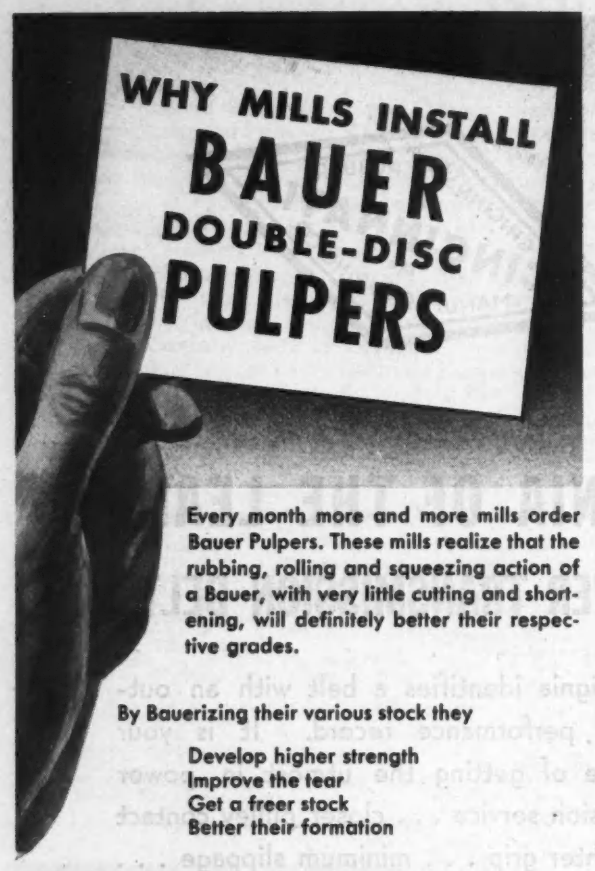
"Many children are employed today in violation of the Federal Wage-Hour Law, and a great many of these children are being exposed to industrial hazards; quite frequently they meet with serious accidents."

INSIGNIA OF THE LEADER
OF POWER TRANSMISSION BELTING

This insignia identifies a belt with an outstanding performance record. It is your assurance of getting the utmost in power transmission service . . . closer pulley contact . . . tighter grip . . . minimum slippage . . . the last word in manufacturing skill and careful production.

Remember, there is a Cincinnati belt that will meet your power transmission problem most efficiently. Write us your requirements.

THE CINCINNATI RUBBER MFG. CO., CINCINNATI, O.



Every month more and more mills order Bauer Pulpers. These mills realize that the rubbing, rolling and squeezing action of a Bauer, with very little cutting and shortening, will definitely better their respective grades.

By Bauerizing their various stock they

Develop higher strength
Improve the tear
Get a freer stock
Better their formation

Bauers are outstandingly effective on kraft and sulphite knotter and screen rejects, semi-chemical and semi-sulphite pulps, ground wood screenings.

Use Bauers on mixed papers to help combat current stock shortage.

Two sizes—36" and 24". Variety of plate patterns.

Write for full particulars.
Get your Bauer on order.

THE BAUER BROS. CO.
SPRINGFIELD, OHIO

Obituary

Harold Hibbert

Dr. Harold Hibbert, former Eddy Professor of Industrial and Cellulose Chemistry at McGill University, Montreal, died in New Haven, Conn., on Monday, May 14, 1945.

Professor Hibbert was born in Manchester, England on August 27, 1877 and graduated from Victoria College, Manchester in 1897. He received his Ph.D. from University of Leipsig in 1907. He was instructor in chemistry at the University of Wales for four years and two years at Tufts College in Medford, Mass., following which he was a research chemist for E. I. du Pont de Nemours, Wilmington, Del., for five years and a research fellow at the Mellon Institute for two years. He then became professor of chemistry at Yale University where he remained for six years until he became advisory chemist for the British War Mission during a year's leave of absence. Later he was selected to fill the Eddy endowed chair in industrial and cellulose chemistry at McGill University, where he remained until his retirement last year.

Professor Hibbert was the author or coauthor of more than one hundred publications relating principally to the chemistry of cellulose, lignin and related compounds. He was prominent and active in many scientific societies and was a member of the Technical Association of the Pulp and Paper Industry. In the PAPER TRADE JOURNAL issue of May 17, 1945, p. 44, appeared the announcement that Dr. Hibbert was awarded the honor of membership in the American National Academy of Science.

James E. Folsom

BOSTON, Mass., May 21, 1945 — James Enders Folsom, 72, retired office manager of D. De Stefano Company, Inc., dealers in paper stock, 83 Damrell street, died May 11 at the Mary Hitchcock Memorial Hospital, Hanover, N. H. His home was at 27 Lowell street, Braintree, Mass.

A native of Westfield, N. J., he lived in Braintree 40 years. He was a member of Delta Lodge, A. F. and A. M.; South Shore Commandery, K. T., and Aleppo Temple.

There are living a wife, Gladys (Shields) Folsom; a daughter, Mrs. George Dares Hall, of Quincy, Mass., and a son, James Forrest Foslom, of Wellesley, Mass., both by a former marriage; two grandchildren, Sylvia Hall and Joan Folsom, and a sister, Mrs. Elmer Brokaw, of Plainfield, N. J.

Mrs. Brydon D. Millidge

Mrs. Brydon D. Millidge, wife of B. D. Millidge, vice president and general manager of the Canadian Bemis Bag Company died suddenly at Cornwall, Ont., on Friday, May 18th. Mr. Millidge was formerly manager of the Cornwall Division of the Howard Smith Paper Company.

Brown Co. to Pay Interest

F. G. Coburn, president of the Brown Company, announces that the Company will make the semi-annual payment of interest on its general mortgage 5% cumulative bonds for the six months ending May 31. Checks will be mailed on June 1 to registered owners at the close of business May 31.

Maintenance time reduced to a minimum

Every day, Powell Valves are piling up records for continuous operation without requiring maintenance. And when they finally need attention, Powell design and construction is such that the time spent in maintenance is reduced to a minimum. The gate valves shown here are examples of the complete Powell Line in which ease of maintenance is always a feature.

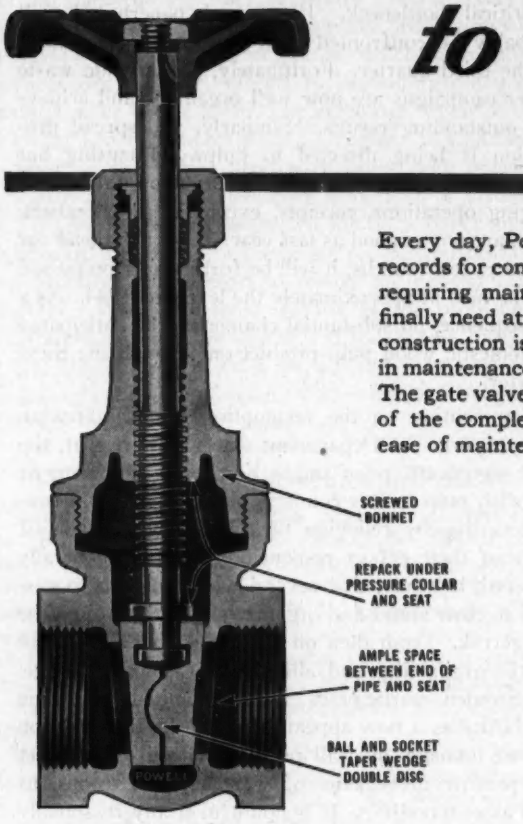

SCREWED BONNET
REPACK UNDER PRESSURE COLLAR AND SEAT
AMPLE SPACE BETWEEN END OF PIPE AND SEAT
BALL AND SOCKET TAPER WEDGE DOUBLE DISC

Fig. 500
BRONZE "U. S." GATE VALVE

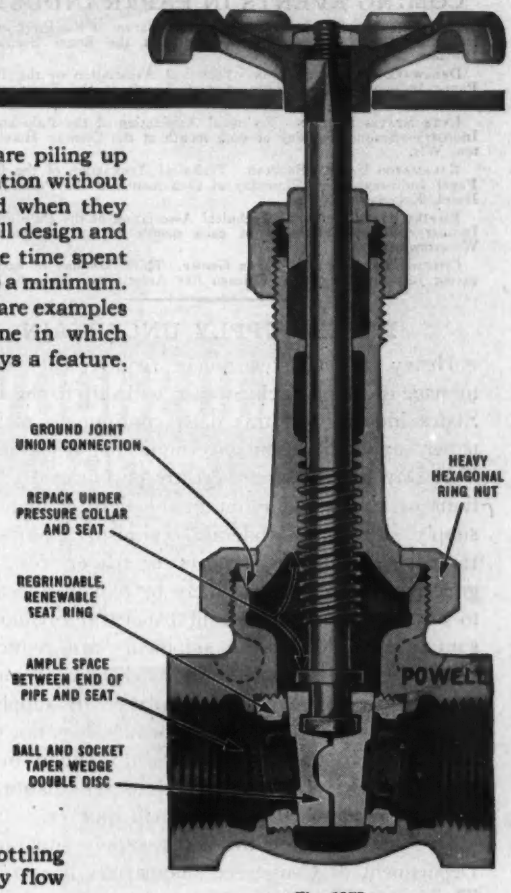

GROUND JOINT UNION CONNECTION
REPACK UNDER PRESSURE COLLAR AND SEAT
REGRINDABLE, RENEWABLE SEAT RING
AMPLE SPACE BETWEEN END OF PIPE AND SEAT
BALL AND SOCKET TAPER WEDGE DOUBLE DISC
HEAVY HEXAGONAL RING NUT
POWELL

Fig. 1375
BRONZE "WHITE STAR" GATE VALVE

In all installations where pressure drop is undesirable and throttling is unnecessary, the gate type of valve, with its full straightway flow area through the body, should be used.

Fig. 500 is Powell's answer to the widespread demand for a sturdy small bronze gate valve where initial cost is a consideration. With its readily removable screwed-in bonnet it is easy to reface the seats and disc or replace the disc if necessary. The taper wedge double disc, with its Powell-designed ball and socket action, readily adjusts itself to any inclination of the seat faces caused by refacing, thus effecting a tight closure. Since the seats are cast integral with the body, this valve will give dependable service as long as sufficient metal remains in the seats to permit refacing.

For *extra long life*, Fig. 1375 is recommended. The ground joint union connection makes it especially easy to remove the bonnet assembly from the body to reface or, if necessary, to replace the disc and renewable seats. This may be done any number of times without any distortion of the body neck, such as might occur with a screwed-in bonnet. Both disc and seats are made from a special hard nickel-bronze alloy which resists wear over a long period of time. When these parts will not take further refacing, they can be readily replaced with new ones, thus greatly prolonging the life of this valve.

All Powell Valves that require repacking are provided with a specially machined cut-off to permit repacking under pressure when wide open.

The Wm. Powell Co.
Dependable Valves Since 1846
Cincinnati 22, Ohio

POWELL VALVES

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger, Editor

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Empire State Section. Technical Association of the Pulp and Paper Industry—Second Thursday of each month at the Woodruff Hotel, Watertown, N. Y.

Chicago Professional Paper Group. Third Monday of each month except July and August at Chicago Bar Association, Chicago, Ill.

PAPER SUPPLY UNCERTAIN

Heavy all-over government requirements and the tonnage of pulp which Sweden will ship to the United States indefinite at this date, continue to make the paper supply situation uncertain. The declaration of V-E Day has, however, greatly encouraged expectations of substantial relief in the tight civilian paper supply situation. Moderate optimism appears warranted. The heavy exports of paper for varied government uses seems likely to remain a deterrent to any adequate increase in paper for civilian consumption until overseas shipments are reduced or relatively large shipments of Swedish wood pulp are received to create a better balance in supply and demand. If the OPA price schedule does not curtail Swedish pulp imports, as current opinion in some quarters anticipates, an approach to this balance seems likely to be reached in the fourth quarter.

In commenting on the paper supply situation, the Department of Commerce summarizes it as follows: The first quarter 1945 paper and paperboard production program was reasonably well fulfilled, actual production being only about 2% less than authorized minimum production. Paper output, in fact, exceeded the minimum program by a small margin, particularly in printing papers, fine papers and in coarse papers. Production of paperboard, however, was nearly 6% below authorized minimum, with all types somewhat below the program, except cardboard. A number of factors affected specific mill operations in the first quarter, particularly with respect to pulpwood, wood pulp and waste paper. Preliminary weekly figures for April indicate that paper and paperboard output is holding up at a steady level. Waste paper receipts in April will probably approach the high point established in March. Field reports indicate that pulpwood receipts in April are generally satisfactory, except in the Pacific Northwest, with a continuation of the much improved situation in the South.

Reporting that demands for packaging paper and board continue at peak levels, the Department states that repackaging of war materiel in the European theater may soon become a major factor and coupled with other packaging needs, such as relief supplies as well as domestic reconversion to a larger output of civilian goods, may again find packaging materials a critical bottleneck. Paper and paperboard will probably be confronted with even greater demands in the third quarter. Fortunately, nation-wide waste paper campaigns are now well organized and achieving outstanding results. Similarly, widespread promotion is being directed to pulpwood cutting but because of the tighter labor situation on farms and logging operations, receipts, except in the Southern area, are not as good as last year. Looking ahead for the next few months, it will be fortunate if pulpwood can be held at approximately the levels of 1944. As a consequence, no substantial change can be anticipated in domestic wood pulp product on through the third quarter.

Commenting on the resumption of Scandinavian pulp exports the Department states in part that, the only significant relief might be prompt shipment of Swedish pulp to this country, or to other world consumers thereby relieving the U. S. and Canada of some of their export responsibilities. It is generally believed, however, that several weks would be necessary to clear mines and organize shipping through the Skagerrak. From then on the controlling factor will be the availability and allocation of shipping space. If Sweden participates in the United Maritime Authority as it now appears she will do, the direction of her tonnage, over-all presumably will be to meet the priority movements of war materiel, troops, as well as commodities. It is doubtful if any reasonably accurate estimate could be made prior to July 1 of the quantities of Swedish pulp which may be moved during the third quarter, or its destination, and even then such estimates would probably be subject to prevailing conditions from day to day and week to week. Movement in the fourth quarter could be handicapped by freezing of some ports which sometimes occurs early in November. Thus, the question of how much of the present Swedish stock pile of well over 700,000 short tons of wood pulp could be placed in world consuming markets before next winter, is subject to many contingencies and certainly there is no positive assurance that any substantial supply could reach the United States in the third quarter.

Evidence of the very critical paper and paperboard supply situation is indicated in the placing of sulphate pulp and containerboard in the National Production Urgency list. This action, the Department of Commerce explains, should be very helpful in dealing with the acute manpower problems in these segments of the pulp and paper industry. Military requirements continue their progressive increase, second quarter estimates for certain special types of paper having already been doubled. No figures on third quarter estimates are yet available, but there seems to be little prospect of any material decline.

Referring to the change in Paper and Paperboard Order M-241, of April 14, 1945, the Department states that this amendment changes the reserve production clause of the order to require a manufacturer to apply the percentage to the monthly production of the class or classes, grade or grades, which the manufacturer can produce, subject to his authorized use of pulp under Order M-93. The inventory restrictions of Order L-336-Sanitary Food Containers, in addition to those of the orders previously listed, take precedence over the general inventory provisions of Order M-241. WPB recently requested the pulp, paper and paperboard industries to cooperate on all transportation problems in an effort to relieve the present car shortage. While the most serious of the problems is a freight car shortage of between 18,000 and 20,000 a day, the lack of suitable trucks and tires also is hindering receipt of supplies and delivery of paper products by many paper mills.

Patton Promoted to Chicago Post

James C. Patton, Jr., sales engineer in Detroit for Heppenstall Company, Pittsburgh, has been placed in charge of the company's Chicago sales office at 208 S. LaSalle St. This announcement was made this week by Lee A. Daines, vice president and general manager of sales. The new district representative in Chicago joined Heppenstall Company in January, 1935. After six months in the Pittsburgh office he was appointed a sales representative in the Detroit area.

Mr. Patton comes to Chicago succeeding Mr. Daines, who on May 1 left that office to assume duties in Pittsburgh. From 1926 to 1935, Mr. Patton was associated with the Great Lakes Forge Co., Chicago, as assistant metallurgist and as chief metallurgist.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1945		Corresponding Weeks—1944	
Apr. 7	86.8	Apr. 8	86.2
Apr. 14	87.4	Apr. 15	84.7
Apr. 21	90.7	Apr. 22	89.7
Apr. 28	88.0	Apr. 29	89.8
May 5	90.7	May 6	88.9
May 12	*85.4*	May 13	87.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1944	88.7	88.5	88.1	87.6	88.7	89.8	80.3	90.6	88.2	92.5	90.6	82.4	88.1
1945	86.7	89.4	90.2	*88.1*									

COMPARATIVE YEARLY SUMMARIES

	1938	1939	1940	1941	1942	1943	1944	1945
Year to Date	67.5	80.2	85.7	91.7	102.2	88.9	88.2	*88.3*
Year Average	71.5	83.4	85.6	97.4	90.4	87.8	88.1	

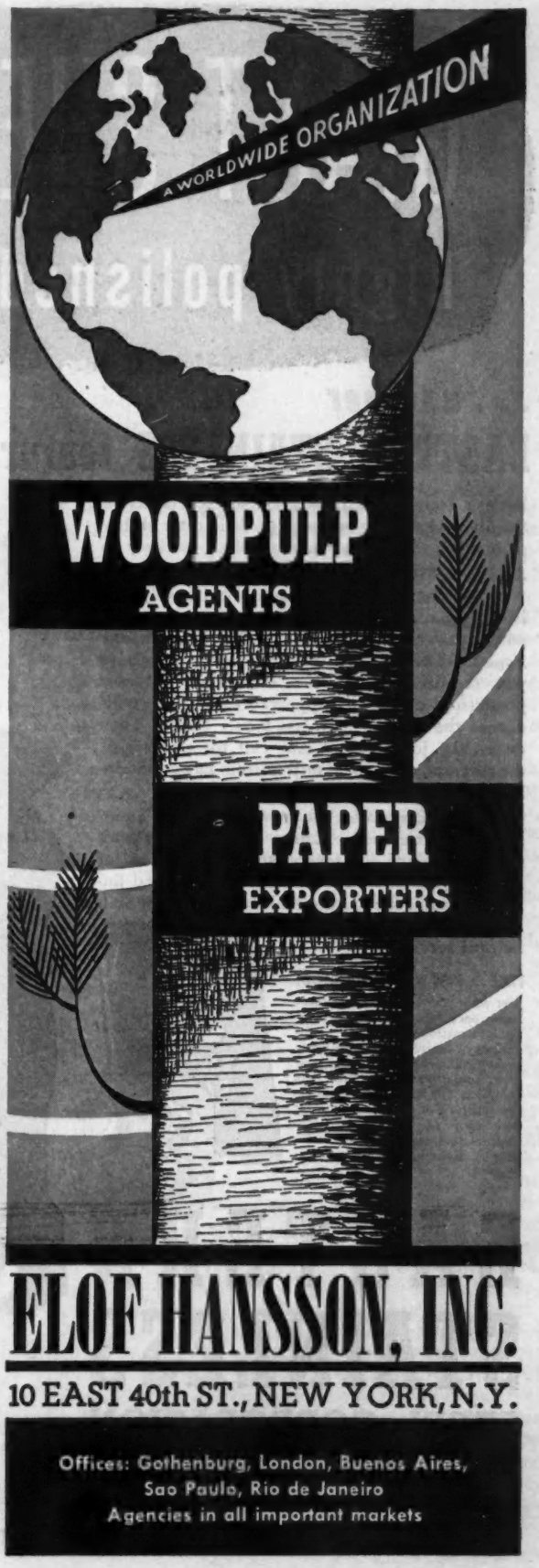
*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1945		Corresponding Weeks—1944	
Apr. 7	92	Apr. 8	94
Apr. 14	97	Apr. 15	92
Apr. 21	98	Apr. 22	98
Apr. 28	99	Apr. 29	98
May 5	97	May 6	98
May 12	*94*	May 13	95

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1944	90	96	95	96	96	96	85	96	92	95	95	85	93
1945	91	95	97	97									

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.



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Edited by R. G. Macdonald, Secretary

Fibers and Chemicals Used in Present Day Fabrics*

By H. W. Wilkinson, Jr.[1]

Abstract

Because of the consumer demand for more permanent finishes and colors, the textile industry has developed products that are difficult to process when they reach the paper mill. The different classifications of finishes and colors are briefly discussed and the method of treatment for removing them indicated. In some cases, as in fabrics treated with vinylite or synthetic rubbers, more research will be required to reach a satisfactory solution.

The products of the cotton finishing industries are controlled through two different channels: The first, by demands from the consumers and secondly by the submittances of the finishing industry itself. The consumer has a definite motive in mind when making requests for a particular finish; all of which the finisher, to keep the consumer happy, generally acquiesces. The finisher, on the other hand, quite often experiments with and promotes fancy finishes of various sorts and kinds, in order to capture a market with something new and different, something that will give him a premium price. This is probably the cause of all the headaches of the paper manufacturers using textile waste as a raw material.

Textile Finishes

Finishes may be roughly classified into natural and synthetic finishes. Under natural finishes are the fabrics containing starches, gums, talcs, and other inert materials which are easily removed from any fabric. Under synthetic finishes there is a greater problem, as are found therein, cationic materials, resins of the formaldehydes, methacrylates, polymerized silicas, and others too numerous to mention. Of these materials, the main purpose on cotton fabrics is to give permanency in one form or another; such as creaseproofness, shrink resistance, water repellency, and the like. Naturally, the chemical manufacturer has as his main object, a definite permanency which is extremely hard to remove from the fabric. This in itself has no doubt caused the paper industry a good deal of trouble.

There are other types of synthetic finishes known commercially as Kopan or Ceglan which the cotton finishers are beginning to use a great deal of today. These should cause no particular problem, as they are, basically, converted cellulose materials and when set on a fabric, react almost identically to the cellulose fiber itself. However, the other above-mentioned synthetic materials may possibly be removed in general by mild acid digestion. Although cellulose itself is sensitive to acid, likewise are the resinous materials. But, cotton being a much more stable compound will not break down as rapidly as the synthetic materials. This, of course, is only a generalization, and specific conditions would probably give a variation or a digression thereof.

With specific reference to fabrics treated with DuPont's Zelan, Warwick Chemical's No-Rane, or Warcopel, and other permanent-type water repellents, a very weak formic acid digestion usually gives the best results. Nonpermanent types of water repellents are of a different nature chemically as a general rule. These consist mainly of metallic salts in wax emulsions. The proper procedure for their removal is first to remove the metallic salt, most commonly done with oxalic acid, then treating the fabric or rags with a soap and solvent emulsion.

Color Removal

With reference to colored rags, there is a very serious problem. It will be found that colored fabrics contain various classification of dyestuffs, all of which react differently to chemical treatments. The poorer grade of colors, commonly known as commercial colors, generally strip in a water bath. The intermediate grade of colors, which generally include those which are chemically coupled onto the fiber, invariably strip off in an alkaline boil. The best grade of colors, which generally includes those of the indigoid and anthracene vat colors, are the worst offenders. Once these dyestuffs are fixed onto the fabric it practically takes "Hell and high water" to budge them.

There is a new type of color that has been on the market for the past five or six years, where an inert pigment dyestuff is fastened to the fiber by a resinous material. These dyestuffs, originally put on the market by the Aridye Corporation, are also almost impossible to strip from the fabric. Although the author has never personally investigated the removal of these dyestuffs from fabrics, he is inclined to believe that an acid digestion might here again help to a certain degree.

* Presented at the October meeting of the New England Section of the Technical Association of the Pulp and Paper Industry at Pittsfield, Mass., Oct. 6, 1944.

[1] Tech. Director, Southbridge Finishing Co., Southbridge, Mass.

In respect to the removal of these colors from cotton fabrics, it might be added that our laboratories have done, and are still doing, a considerable bit of research with regards to the removal of color by means of organic solvents. This can be said, that on a laboratory scale, the results to date have been very gratifying, and shortly it is expected that some of the experiments will be made on a somewhat larger scale. One thing that has been noted in this method of removal is that practically every type of finish on the fabric is removed, as well as removing the various dyestuffs in question.

If it should be the unfortunate luck of any purchasing agent to obtain fabrics which have been coated with any of the various vinylite or synthetic rubber materials, there is probably nothing that can be accomplished as far as obtaining the pure base fabric is concerned. However, on a small scale these coating materials have been completley removed by digesting in special solvent formulas, under slightly elevated pressures and temperatures.

The post-war outlook for the finishing industry will probably be very bad as far as the rag users are concerned. First of all the consumers are becoming very conscious of permanency, and secondly they have already started to demand much better colors with regards to fastness on the fabrics. Although it may not be too bright a picture, it is believed that through constant research and experimentation, that the technical men of paper industry, in cooperation with the technical men of the textile industry, can go a long ways in alleviating the greater part of the difficulties.

TAPPI Notes

C. M. Connor is now vice president and general manager of the Glassine Paper Company, Conshohocken, Pa.

A. E. H. Fair is now vice president of the Alliance Paper Mills, Merritton, Ont. and the Don Valley Paper Mills, Toronto, Ont., and general manager of the Cornwall Div. of the Howard Smith Paper Mills, Thorold, Ont.

Brydone D. Millidge is now vice president and general manager of the Canadian Bemis Bag Company, Winnipeg, Man., and Vancouver, B. C.

Clifford Swett, formerly of the Stein Hall Manufacturing Company is now technical director of the National Wax Company, 1300 W. Division street, Chicago 22, Ill.

N. L. Shamroy, formerly of the Leonard Construction Company is now engineer for the Rust Engineering Company, Clark Building, Pittsburgh, Pa.

Howard A. Simons, consulting engineer for Bloedel, Stewart & Welsh, Ltd. has transferred from the Seattle office to 703 Holden Building, Vancouver, B. C.

William H. de Montmorency, formerly of the Gair Company of Canada is now research associate for the Pulp and Paper Research Institute of Canada, Montreal, P. Q.

The Railway Supply and Manufacturing Company is now located at 335 W. 5th street, Cincinnati, Ohio.

Kenneth A. Arnold, formerly of the Brown Company is now chief of container research, St. Regis Paper Company, Oswego, N. Y.

William A. Kraske, formerly of the Oxford Paper Company is now general superintendent for the Gould Paper Company, Lyons Falls, N. Y.

Ferri Casciani has transferred from the research department of the technical service department of the Niagara Alkali Company, Niagara Falls, N. Y.

Carl E. Flander, formerly of the Mead Corporation is now technical consultant for the Jay Madden Corporation, 30 Rockefeller Plaza, New York, N. Y.

George S. Carroll papermill superintendent of the Monadnock, Bennington, N. H.

The TAPPI Lake States Sections and the Northwest Superintendents Division will meet at the Conway Hotel, Appleton, Wis., on June 1-2, 1945.

Dannerth Talks on Synthetic Resins

Dr. Frederic Dannerth, industrial research chemist of East Orange, N. J., talked on "Synthetic Resin Films for Decorative and Protective Purposes" before the May meeting of the American Association of Textile Technologists.

Carl Taber, president of the Association, and manager of acetate fabric development for the Du Pont Company in New York City, introduced the speaker of the evening, and pointed out the importance of synthetic resin films to the manufacturers of textile fabrics, as they can be used alone or in combination with other materials.

Among the films discussed by Dr. Dannerth were cellophane, cellulose nitrate, cellulose acetate, cellulose acetate-butyrate, and ethyl cellulose. Among the ethylene derivatives he called attention to: polyvinyl chloride, polyvinyl acetate, and their co-polymers, polyvinyl alcohol, polyvinyl butyral, vinylidene chloride and polystyrene. After giving time to chlorinated rubber and rubber hydrochloride, he called on Dr. Howard Turner of Du Pont to present the story of Nylon films.

The discussion of the various resin films was rounded out by an exhibition made possible with the cooperation of B. F. Goodrich Chemical Co., E. I. Du Pont de Nemours & Co., Eastman Kodak Co., Bakelite Corp., Textileather Corp., Velvaray Corp., Pittsburgh Plate Glass Co., Dow Chemical Co., Paterson Parchment Paper Co., Owens Corning Fiberglas Corp.

Among the questions presented to the Board were: What progress has been made in increasing the resistance of vinyl resins to tropical temperatures? Is it possible to impregnate paper yarns with flexible resins previous to weaving? What kind of polymers actually form films? Can all resins be formed into flexible films? Are all synthetic resin films water resistant?

The questions were answered in turn by the master of ceremonies and his board of experts. Some of the questions found their best answer in the extensive exhibition which showed the free films, as well as coatings on cotton, glass, and paper surfaces.

Fred Enders Heads United Paperboard

The directors of the United Paperboard Company have accepted the resignations of Leeds Mitchell as president, John Drew as vice president and general manager and Mitchell Todd as vice president and secretary.

Fred Enders has been elected president, James Todd, Jr., vice president; H. W. Kephart, vice president in charge of sales; P. M. Loodengaard, vice president in charge of production and John F. Cordes, secretary and treasurer.

Machine Coated Paper*

By P. J. Massey[1]

Abstract

Machine coated papers have become extremely important to the printing industry and further advances are to be expected. The primary object for its development was to provide by economical means a paper that would take fine half-tones.

A general description is given of the various types of machine coating equipment including the several variations of the roll and trowel coaters. The raw materials such as minerals, adhesives, raw stock, etc. are also considered.

Machine coating became commercially important in the United States during the last decade. The success of this commodity was practically instantaneous as it found general acceptance in the printing and publishing fields. The revolutionary change in letter press printing, the use of heat set inks, materially aided the sales promotion and exploitation of the machine coated product.

The heat set method of printing stressed the demand for a paper with a plane surface, brilliant color, high affinity for the inks used, and with physical perfection of the paper in rolls that would permit of efficient operation on high speed modern rotary presses.

The successful changes in the formulation of the coating color, improvement through experience of the know-how or technique of application and mechanical changes governing subsequent operations as in supercalendering and rewinding insured the successful acceptance of machine coated paper for publications and mail order insert printing.

It is an indisputable fact that machine coating has brought about the greatest advance in paper technology in the last half century. The present scientific knowledge and test methods for evaluating printing surfaces and printing materials including inks and plates are directly due to machine coating. It is also the main factor in the success of the important new development in letter press printing.

Development of Machine Coated Paper

The primary object of machine coated paper development was to provide an economical means for producing a mineral coated paper with a high finish, and a plane surface that would give a perfect reproduction of fine half-tone engravings. The coating color applied to such surface had to have ink affinity to receive the ink film and leave a clean plate at each impression. A sheet having these characteristics at an economical cost was in demand by publishers of both magazines and mail order catalogues. The end point of the desire for such a sheet was to enable the printers to produce mono- and multi-color illustrations on rotary presses comparable in quality to the products using brush coated papers on sheet feed nonperfecting presses.

The theory or idea of applying coatings and/or various surfacing materials to paper on a paper machine are almost as old as the papermaking art itself. However, the practical, technical, and economic ways and means for accomplishment were not developed until 1930.

At the inception of the process, it experienced all the vicissitudes of a new invention as applied to a conservative industry. When it is considered that it was to function for two extraordinary conservative industries, some concept of the difficulties encountered can be realized.

Paper mill management tacitly acknowledged the practicability and possibility of the process but were loath to go on record with their board of directors for the necessary capital investment. The main reasons presented for this attitude were: first, that the new process would obsolete their investments in the old coating process; second, that there was no demand for mineral surfaced paper not being met by the presently available equipment. Even though the process was proven practical and successful on their own paper machines at the inventors' expense and the finished product readily saleable at the going market prices, they did not have the courage to adopt the new process.

The qualities of the new product and the apparent possibilities of its successful exploitation were fully visualized by George W. Mead. He had the courage of his convictions, surrounded himself with all the available elements of success and made the necessary capital expenditures, changes in personnel and sold the venture to his board of directors, stockholders, and organizaiton. In spite of many technical obstacles that could not be foreseen because of the paucity of scientific information on the physical and chemical constants involved, he prosecuted the development work through to its successful commercial and economic completion. He deserves great credit for having given this valuable advance in paper technology to the world.

There were a number of serious limitations encountered at the outset of its commercial operation primarily caused by the lack of any bibliography or scientific knowledge of not only the process, but also the available raw materials involved. This is readily understandable today as the data and numerical values available covering starch, casein, glue, soy bean protein, clay, titanium, plasticizers, and all other raw materials used in formulating the color or coating are practically new.

Today, the selection and formulation of a coating meeting with any definite specifications including surface value, printing value, ink affinity, flexibility, penetration, brightness, opacity, moisture content, and aging value is standard practice based on definite numerical values.

The successful accomplishment of the vast technical job for the development of fully visual or numerical values of the physical phenomena involved in machine coating and its application is an accomplished fact.

Machine coated paper is established as a definite contribution to the paper industry and the graphic arts. Its acceptance is evidenced by the tonnage consumed today. The demand is limited to the full ca-

* Presented at the October meeting of the Chicago Professional Paper Group, Chicago, Ill., Oct. 16, 1944.

[1] Member TAPPI; Assist. to President, H. P. Smith Paper Co., Chicago, Ill.

pacity of the present equipment which has not been expanded during the war period.

The Future of Machine Coated Paper

During the war period, developments in the manufacture of paper have remained static except where the mills' activities were turned from their normal course to meet the needs of the war effort. Machine coated paper, as defined in the accepted sense of the last decade, was not a war necessity and therefore, no expansion in equipment was possible.

However, present activities of management in organizing and pressing many research projects for development of machine coating is indicative of a very appreciable post-war expansion as applied to both paper and board. Similar activities are being prosecuted in Great Britain, France, and British colonies.

Probably the most interesting and important general factors governing the attitude and efforts being expended on machine coating are:

A. The possibility of broadening the number of methods or processes without infringement of present patents by taking advantage of the improved technology now available.
B. The desire to expand the process applications to light weight kraft, envelope, food wraps, and other converter paper, folding box, container board, and other board mill products.
C. Preparing to meet the increased demand for printing papers and to meet the requirements of the new post-war printing presses.
D. Necessity of the older mills to anticipate post-war conditions and produce lines that will permit their existence in the new economy.
E. The gradual exhaustion of pulpwood in some paper producing centers which necessitates increased use of clay and other minerals as pulp extenders to balance the productive capacity.
F. The program of the Southern mills to improve and expand their activities for producing quality printing and specialty papers.
G. The trend to follow the herd instinct and stampede to machine coating as a panacea for any and all ills.

Coating Equipment

Indicative of the efforts being expended by management on machine coating to prepare their mills for the postwar impact of this activity on their sales is the information compiled by Dr. C. J. West of the Institute of Paper Chemistry. In his bibliography, he reports that in the five year period, from 1939 to 1943, inclusive, 42 paper coating patents were issued in the United States.

The principles involved in the various types of machine coating equipment cannot be covered in detail in a general treatise of this nature. However, in order to present some concept of various machine coating processes, they are herewith presented in a functional grouping consisting primarily of two types.

Type I—Roll Coaters

This equipment is based upon the premise of preparing a preworked film and applying said film to the continuous web of paper in its course of travel on the paper machine.

Class A. The basic patent involving this principle covers a multiple number of rolls. Two of the rolls act as metering rolls where the coating material is carried. Mechanism provided with micrometric adjustment and peripheral variance in speed between these two rolls produces through the shearing action a film of coating of predetermined thickness. The additional rolls, one or more of which may be provided with an oscillating mechanism to prework the clay to a perfect continuous film. The prepared mineral coating film is transferred to the traveling web of paper by the last two rolls in the chain. A number of variations of this basic principle have been evolved and may or may not be factors in the post-war expansion of machine coating.

Class B. Intaglio roll coaters involving the idea of a preworked and/or premetered film based upon some type of indentation in the metering roll with a doctor to level the material is the basic principle in coaters of this class.

This intaglio method applies the metered coating retained in the indentations or wells either to the paper web direct or indirectly by transfer to a rubber roll.

The intaglio method is inflexible as the quantity is fixed by the depth of the indentations or wells of the doctored roll. The printing value of the cast film, even though transferred or offset, is still questionable in fine halftone or rotogravure printing.

Class C. The size press type of coater consists of two or more rolls in a vertical position. The nip between the rolls meter the coating onto the paper web as it passes through the nip.

As its name indicates, this class of coater is similar to the means used for applying size to bond and other papers on a paper machine.

Considerable effort has been expended in improvements in design and mechanization of this principle and it may be a factor, to a limited extent in the post-war machine coating program.

Class D. Representative of this class is the suction roll type of coater predicated on the principle of the suction roll on a paper machine.

This process has possibilities but as yet has not been fully perfected to operate at the width and speed of a modern paper machine.

Type II—Trowel Coaters

This type of coater is premised upon dispersing, smoothing, and evening the coating after it is applied to the paper web.

Class A. The oldest class of this coating type is the conventional brush coater wherein the coating was smoothed or troweled by reciprocating brushes.

Class B. The spray coater with a rod or roll doctor to even or smooth the coating after it has been sprayed on the sheet is illustrative of this class.

Spray class coaters have been given as much if not more attention by inventors than most any other class. The apparent simplicity, plus the widespread application of the air brush principle to paint application has undoubtedly motivated this activity.

With the possible exception of fancy wrappings, the author does not know of any successful economic operation of this class as machine coaters. Perhaps, with the intensive efforts being put forth in spray coating, some measure of success may be accomplished in the future.

Class C. The Doctor Coater.

C-1 consists of a roll applicator to deliver the coating material on the paper web and a stationary doctor blade with curvature and surface to properly spread or trowel the applied coating.

C-2. This class uses similar applying means for placing the coating on the paper web, but the evening or troweling operation is performed by an air jet operating on the full width of the web. The air pressure being the means for leveling instead of a mechanical doctor.

C-3 consists of a roll applicator running at controlled variable speeds at variance to the peripheral speeds of the paper web with which it makes contact controlling thereby the quantity of coating on the web. The web is then passed over a wire to smooth or trowel the applied coating. The speed changes of the color applying roll plus the variance in diameter of

the wire give a wide elasticity to quantities applied.

C-4. This operation consists of applying the coating to the paper web and then compacting same with the aid of pressure from one or more rolls to a large diameter highly finished chromium-plated drier roll. This compacting of the malleable coating to the hot smooth drier produces a high, finish plated surface similar in appearance to a glazed paper surface.

Raw Materials

The successful accomplishment of the technical job to develop the raw materials for the economical operation of machine coating was in a large measure because of the wonderful cooperative effort of the clay, adhesive, and other raw material suppliers. All of the units involved, either on the producing or supplying ends of this activity, are deeply indebted to the electron microscope. Without this instrument, processes for classifying clays into various micron size groupings and evaluation of printed surfaces would not have been possible.

Minerals

To the clay producers, more than any raw material supplying agency, the success of machine coating is indebted. Their research and development work resulted in large capital outlay for installing new processes for clay treatment and classification into various grades having definite micron size and distinctive physical properties.

Adhesives

The adhesive suppliers also gave material assistance in development of machine coating. The study of new treatments of starches, casein, soy bean protein, and other adhesives to adapt them to machine coating and the cooperative efforts for developing special compounding techniques by the adhesive suppliers materially helped to achieve successful formulations.

Raw or Body Stocks

The comparatively recent studies of printing surface phenomena has focused attention to the importance of the base stock used in machine coating. It has been definitely proven that the pulp, clay, and other ingredients of the body stock have a very important influence on the physical properties of the finished coated sheet. This applies especially to the printability values.

The printing values of cellulose fibers vary as to the species of wood from which the pulp was produced. It was found that this variance does not follow the former concept of the coniferous woods, such as spruce, being superior to the hardwoods as many species of hardwoods furnish pulps with high printing values. The Cinderella of papermaking fibers, groundwood, lends superlative values to the printability of machine coated paper especially in cushion and take off values.

Conclusions

Probably the most interesting and important general change for machine coating in the future will be the expansion in number of installations. There will undoubtedly be a number of processes now being experimented with that will be successfully and economically used on a commercial scale.

This post-war expansion in machine coating will not be confined to the application of clay coatings but will expand to the coating and treating of papers with resins and other plastic materials to impart various desired physical properties to the paper.

Further depletion of the fibrous resources and competition for the available pulp from the chemical and textile industries will give a further impetus to machine coating as being the most ideal method for use of clay and other minerals as pulp extenders.

The picture of the future for machine coating will be exceedingly bright providing its exploitation is conducted sensibly and with careful planning. Unrestrained "free enterprise" which might easily mean a blind stampede into this type of paper manufacture would definitely be disastrous to the economy of both the industry and the country. The paper industry should profit from the newsprint and Southern kraft experiences and avert a repetition.

New TAPPI Members

E. R. Barker, Jr., sulphite superintendent, Hollingsworth & Whitney Company, Waterville, Maine, a 1931 graduate of the University of Maine.

Roger Bourgon, mill chemist and superintendent of laboratory and control, Consolidated Paper Corporation Limited, Port Alfred, P. Q., Canada, a 1937 graduate of the University of Montreal.

Thomas E. Button, coordinator of board purchases, Continental Can Company, Paper Division, 330 West 42nd street, New York 18, N. Y.

Arthur E. Erickson, chief chemist, Weyerhaeuser Timber Company, Pulp Division, Longview, Wash., a 1937 graduate of the University of Washington.

Walter C. Jacoby, technical supervisor, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Wash.

Hans O. Kauffmann, chief chemist, Buffalo Electro-Chemical Company, Inc., Buffalo 7, N. Y., a 1926 graduate of the University of Tuebingen.

William M. Leeson, chief engineer, the Sandy Hill Iron and Brass Works, Hudson Falls, N. Y.

Roscoe C. Masterman, naval officer, Patrol Bombing Squadron-74, Fleet Post Office, New York, N. Y., a 1932 graduate of the University of Maine.

George N. Miller, plant engineer, P. H. Glatfelter Company, Spring Grove, Pa., a 1914 graduate of Virginia Polytechnic Institute.

Henry Mohrer, student, New York State College of Forestry, Department of Pulp and Paper, Syracuse, N. Y. He expects to graduate in 1945.

Charles A. Newman, control superintendent, Quebec North Shore Paper Company, Baie Comeau, P. Q., Canada, a 1936 graduate of Tri-State College.

Albert P. Peyer, Jr., acting bleach plant foreman, Hollingsworth & Whitney Company, Magazine Point, Mobile, Ala., a 1937 graduate of New York State College of Forestry.

Ellman R. Smith, assistant superintendent, Union Mills Paper Manufacturing Company, New Hope, Pa., a 1932 graduate of Worcester Polytechnic Institute.

George M. Suydam, water plant supervisor, Riegel Paper Corporation, Warren Mill, Riegelsville, N. J., a 1931 graduate of Lafayette College.

Ruderman Talks to Trenton Chemists

Fifty chemists and technical men from Trenton and vicinity were present May 1st at the Trenton Chemical Society. Following the usual dinner at 6:30, the Society heard a 30-minute talk on "The Isolation of Some Poly-nuclear Substances from the Phenol-Formaldehyde Reaction" delivered by Irving W. Ruderman of the Panelyte Division of the St. Regis Paper Company of Trenton.

Alkaline Pulping With and Without Pump Circulation*

By Edward H. Hill[1]

Abstract

Mill kraft cooks were made in the same digester under the same conditions as nearly as possible with the exception that for one set of cooks forced liquor circulation was used and for the other no forced circulation was used. The digesters were charged by adding part of the liquor along with the chips when they were being run into the digester from the chip bin and then cutting off the chips and running in the rest of the liquor. The size digester used for these investigations had a capacity of 3140 cubic feet. When the total volume of liquor charged into the digester was 2.85 gallons per cubic foot, the pulp throughout the digester was not uniform except when forced circulation was used. By increasing this volume to 3.35 gallons per cubic foot, uniform pulp was made throughout the digester. Permanganate numbers were used to determine the uniformity of the pulp in the digester and samples were taken out of the blow line during the time when the digesters were blowing.

From the beginning, in 1907 when the sulphate process was introduced to any extent in the United States, there has been a gradual increase in the size of digesters from year to year. Today, there are digesters with capacities of 4000 cubic feet or more while those in the beginning held only a few hundred feet. It might be truthfully said that larger digesters would be built if larger railroad cars were available for hauling them from the factory to the mill.

The increase in digester size had been brought about by demands for more production, better methods of steaming, forced circulation, etc. Perhaps for the ideal method of circulation the rotary digester fits the bill but the advantages gained by the use of this type of digester are overshadowed by the disadvantages. The disadvantages may be simply explained by referring to the cost of repairs, logical size of digesters, steam leaks, extra help needed for blowing, etc. These defects led the engineer to design digesters which would give similar results as the rotary digester but would not have the maintenance and operating headaches.

To accomplish this, forced circulation of the cooking liquor in the digester was started. There are several methods for doing this. One, the liquor is taken out of the center of the digester and forced back through the top and bottom of the digester. Another is where the liquor is taken out of the bottom of the digester and forced by a pump back into the top of the digester. Both methods claim advantages. The time required to completely circulate the liquor in a digester varies among the experts. The late Paul Hodges thought that the liquor in a digester should be completely circulated in 5 minutes, e. g., a digester charged with 10,000 gallons of liquor should be equipped with a 2000 g.p.m. pump. Experience with a digester equipped with a 1000 g.p.m. pump showed that as the cooking progressed there was a gradual decrease in the volume of liquor circulated. For a 4.5 hour cook, this volume dropped to 400 g.p.m. at the end of the cook.

The old papermaker who chewed his pulp to determine its strength developed a prety keen touch with his teeth. Today the sense of smell is used along with technical data to tell when wood is being properly cooked. If there is not the proper circulation of the liquor in a digester or if there are less chemicals than necessary to digest the wood, there will be a very distinct odor from the relief gases which all pulp mill men know or at least should know how to correct when it occurs.

In order to determine the value of forced circulation, several factors must be considered. The outstanding ones to consider are:

1. Size of digester
2. Volume of liquor used and chemical concentration
3. Method used to charge digester
4. Kind and amount of relief
5. Temperature and pressure used to cook
6. Species of wood and quality of pulp desired
7. Type of steam inlet
8. Cooking time and time to maximum temperature
9. Moisture content of wood
10. Amount and kind of steam available
11. Size of blow lines

To investigate all these factors would take a long time and also would involve too much expense since it is felt that worthwhile data should be taken from mill operations. Very little data are available, and that perhaps would not be if it had not been for certain conditions brought about by the war.

Mill Trials

The digesters at the Plymouth mill were at first equipped with indirect heaters. As these heaters developed leaks and could not be repaired because of the time that would be lost in cooking and not being able to purchase the necessary equipment for repairs, the digesters were gradually changed over to direct cooking. The forced circulation was used for a time until it was found that the circulating lines plugged easily and required a lot of attention. To determine just what effect it would have on the quality of pulp if the forced circulation was not used, six cooks were made in the same digester; three with, and three without forced circulation. As nearly as possible, all factors were the same for all cooks except the relief and circulation. The size of the digester was 3140 cubic feet and a total volume of 9,000 gallons of liquor was used. This amount had been found necessary to give clean blows. The pine chips were run in the digester; and while the white liquor was being charged, the chips were allowed to run into the digester. The white liquor and chips were cut off at the same time. The black liquor was next run into the digester and the cook started.

The digester was brought up to temperature in 2 hours by hand control. At the end of the cooking period, samples were taken out of the blow line as the digester contents were being blown into the blow tanks at intervals of 2 minutes. These samples were washed and tested for permanganate number by the

* Presented at the meeting of the Alkaline Pulping Committee of the Technical Association of the Pulp and Paper Industry held in Savannah, Ga., Oct. 19-21, 1944.

[1] Member TAPPI; Tech. Director, North Carolina Pulp Co., Plymouth, N. C.

TAPPI method. The following tables and figures give the results of these tests and show the amount of relief used for each cook:

TABLE I.—NORMAL RELIEF; 98.0 G./L. TOTAL SODA AS Na_2CO_3; 2 HOURS TO MAXIMUM TEMPERATURE 177° C.; COOKING TIME 4½ HOURS

Sample	No Circulation Permanganate No.	Circulation Permanganate No.
1	23.8	22.0
2	21.6	19.1
3	21.6	19.6
4	22.4	21.8
5	14.7	20.5

TABLE II.—VERY LITTLE RELIEF; 99.5 G./L. TOTAL SODA AS Na_2CO_3; 2 HOURS TO MAXIMUM TEMPERATURE 181° C.; COOKING TIME 4½ HOURS

Sample	No Circulation Permanganate No.	Circulation Permanganate No.
1	28.5	21.5
2	27.3	23.6
3	27.0	24.3
4	26.8	24.7
5	22.2	24.7

TABLE III.—EXCESS RELIEF; 97.5 G./L. TOTAL SODA AS Na_2CO_3; 2 HOURS TO MAXIMUM TEMPERATURE 183° C.; COOKING TIME 4½ HOURS

Sample	No Circulation Permanganate No.	Circulation Permanganate No.
1	25.3	19.2
2	24.0	19.1
3	22.5	19.0
4	20.7	18.2
5	15.1	20.6

After these tests were completed, it was believed that there must be something wrong with the top of the digester since the last sample taken from the blow line had shown a much lower permanganate number in every case where the circulation pump was not used. The total liquor charged per digester was next increased to 10,500 gallons, and samples were taken out of three separate digesters that were cooked without forced circulation. The following table gives the results of the tests on the samples taken from these cooks:

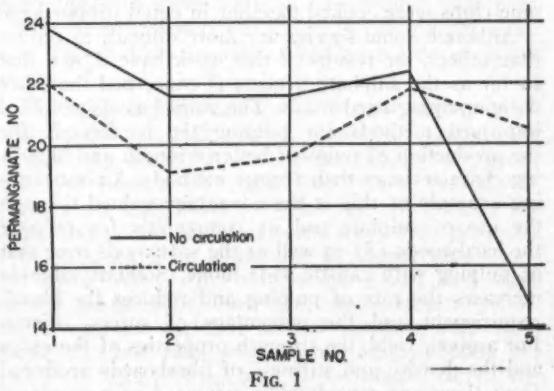

FIG. 1
Normal Relief

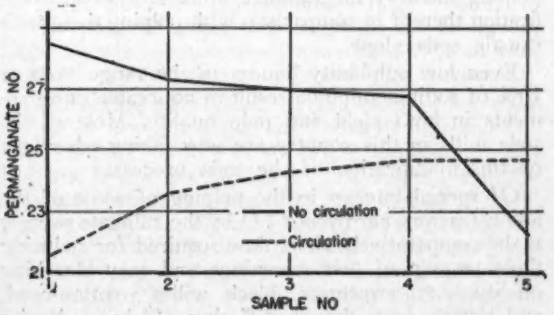

FIG. 2
Very Little Relief

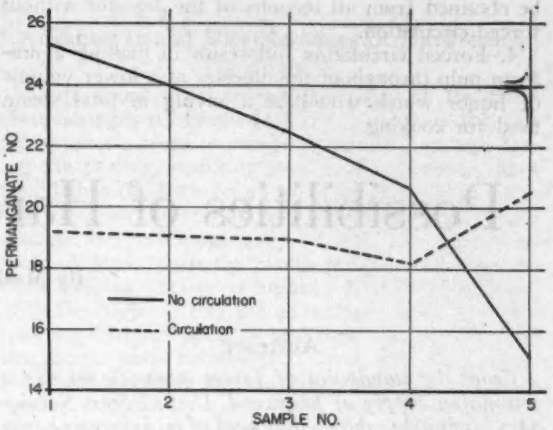

FIG. 3
Excess Relief

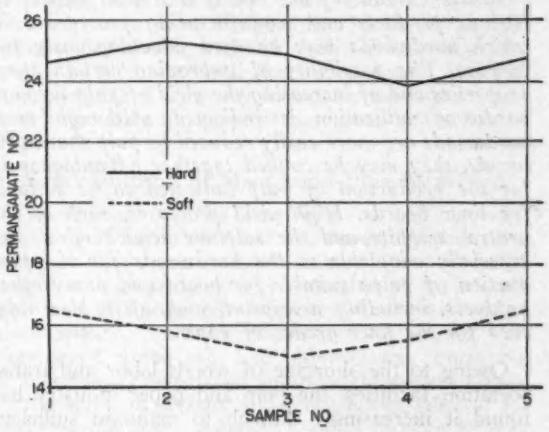

FIG. 4
No Circulation. Increased Volume

TABLE IV.—COOKS MADE WITH INCREASED LIQUOR CHARGE AND WITHOUT FORCED CIRCULATION

Sample	Digester 3 Permanganate Number	Digester 4 Permanganate Number	Digester 7 Permanganate Number
1	24.6	27.2	16.5
2	25.3	26.1	15.8
3	24.9	25.1	15.0
4	23.9	24.7	15.5
5	24.8	25.3	16.5

Note: Pulp from digester No. 7 was used for bleaching.

The foregoing data are insufficient to draw any definite conclusions, and it is a well-known fact that the local conditions at any mill may upset cinclusions that are based on any particular set of data when these are transferred from one mill to another; however, from the standpoint of cooking sulphate pulp at the Plymouth Mill, it is felt the following points have been demonstrated:

Conclusions

1. Charging the digesters with insufficient volume of liquor resulted in differences in the permanganate numbers of the pulp in different sections of the digesters when no forced circulation was used. With forced circulation, this condition was corrected.

2. The use of forced circulation gave a slightly softer pulp than when cooked under the same conditions without forced circulation.

3. By increasing the volume of liquor charged into the digester, it was found that a uniform pulp would

be obtained from all sections of the digester without forced circulation.

4. Forced circulation did result in making a uniform pulp throughout the digester at a lower volume of liquor which would be a saving in total steam used for cooking.

5. Forced circulation does have advantages. Whether or not it is necessary will depend on many factors which must be analyzed for each particular mill. It is felt, however, that forced circulation is not as important as some manufacturers would want the pulpmaker to believe.

Possibilities of Hardwoods for Pulping*

By Mark W. Bray[1]

Abstract

From the standpoint of forest management and a continuing supply of pulpwood, U. S. Forest Service data definitely show the need for increasing the utilization of hardwoods in the production of pulp. The results of experiments performed at the Forest Products Laboratory are briefly described indicating various products and manufacturing procedures in which hardwoods may be used advantageously for pulping. The possibility of improving certain sheet properties and of increasing the yield of pulp through hardwood utilization is indicated. Although most hardwoods are more easily reduced to pulp than softwoods, they may be cooked together advantageously for the production of pulp indicated to be suitable for liner boards. High yield processes, such as the neutral sulphite and the sulphate semichemical, are especially adaptable to the hardwoods for the production of pulps suitable for board and many other products, including newsprint, and, after bleaching, even for the finer grades of papers.

Owing to the shortage of woods labor and transportation facilities, the pulp and paper industry has found it increasingly difficult to maintain sufficient quantities of pulpwood to meet important war requirements and other essential needs. The increased demand for pulps during the war and the likelihood of a continued large consumption of pulp and paper products after cessation of hostilities coupled with a rapidly diminishing supply of traditional pulpwood indicate the necessity of a broader base of the woods, which constitute the chief raw material of the pulp and paper industry. Many southern mills are finding it necessary to go farther and farther afield to obtain pulpwood. If the pulping industry should utilize all the species, hardwoods as well as softwoods, available in the vicinity of the pulp mill, however, the hauling distance from woods to mill could be greatly reduced and a continuous supply of pulpwood assured with less strain on the already limited transportation facilities.

Use of Southern Hardwoods for Pulp

Some southern mills have apparently taken advantage of the abundance of hardwoods in their locality, for, according to pulpwood production data *(1)* for 1942, the consumption of hardwoods in the South was over 10% (710,400 cords) of the total southern pulpwood consumption (6,956,400 cords) for that year; whereas in 1939 less than one-tenth of this amount of hardwoods was used for pulping. This is an encouraging step in the right direction, but to assure a sufficient supply of high-quality timber in the future, a vastly greater proportion of hardwoods now standing will have to be utilized. In order to accomplish this, growth (29.5 million cords for 1936) and drain of hardwoods (22.5 million cords from all causes for 1936) should be more closely balanced; and, in addition, the tremendous accumulation over the past years (342 million cords) of sound material in cull trees and in tops and branches of hardwood saw timber and the like should be used *(2)*.

Experimental Pulping of Hardwoods

Recognizing this situation, the Forest Products Laboratory has conducted extensive experiments with the objective of finding new uses for the hardwoods in pulp and paper manufacture. Pulping experiments by the several processes used commercially were made on a wide variety of hardwoods, representing species of varied density and chemical composition. To demonstrate the possibility of pulping them as they occur naturally in mixed stands, experiments were also made in which hardwood and Southern yellow pine chips were cooked together in equal proportions.

Although some species are more difficult to reduce than others, the results of this work have shown that so far as the sulphate process is concerned there are no nonpulping hardwoods. The work has also evolved improved methods for pulping the hardwoods for the production of pulps of better strength and bleaching characteristics than former methods. An outstanding example of this is the advantage gained through the use of sulphur and its compounds for pulping the hardwoods *(3)* as well as the softwoods over that of pulping with caustic soda alone. Sodium sulphide increases the rate of pulping and reduces the bleach requirement and the percentage of screen rejects. For a given yield, the strength properties of the pulps and the density and stiffness of fiberboards produced from them are considerably increased as a result of pulping them by the sulphate process or some modification thereof in comparison with pulping them with caustic soda alone.

Even low sulphidity liquors in the range of 5 to 10% of sodium sulphide result in noticeable improvements in both yield and pulp quality. Most of the soda mills in this country are now taking advantage of this modification of the soda process.

Of special interest in the pulping of some of the less refractory hardwoods *(3)* by the sulphate process is the comparatively short time required for reducing them to pulp of low screenings and easy bleaching quality, e.g., sweetgum, black willow, cottonwood, and bitter pecan, though differing widely in density (from 23.5 to 36.6 pounds per cubic foot) can be

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* Presented at the meeting of the Alkaline Committee of the Technical Association of the Pulp and Paper Industry, DeSoto Hotel, Savannah, Georgia, October 18, 19, 1944.

[1] Member TAPPI; Chemist, Forest Products Laboratory,[2] Forest Service, U. S. Department of Agriculture.

[2] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

pulped with ordinary kraft liquors to less than 1% of screenings with a cooking period of only 0.5 hour at 170° C. This is in addition to the usual temperature increase period of 1.5 hours. When pulped under these conditions, these four species gave the following yields (moisture-free basis) of bleachable sulphate pulps: sweetgum, 56.9%; black willow, 61.4%; cottonwood, 60.7%; and bitter pecan, 53.8%.

Some of the other hardwoods, such as American elm, sugarberry, and green ash, require 1 hour and blackjack oak 1.5 hours at the maximum temperature (170° C.) to attain an equal degree of reduction under otherwise identical cooking conditions. To attain an equal degree of pulping with the softwoods *(4)*, more drastic cooking conditions are required, which usually result in lower pulp yields.

Possibility of Increased Pulp Yields from Hardwoods

There are several factors that control the yield of pulp per cord of wood from various species. Aside from cooking conditions, perhaps the most important of these are the density of the wood and its stable cellulose content. Many of the hardwoods exceed the more favored softwoods in both of these respects and therefore should not be overlooked in the interest of yield per cord, which is largely dependent upon density, or yield per unit weight of wood, which is largely dependent upon the cellulose content of the wood. If a comparison of yields obtained from coniferous species is made on an equal volume basis, the Southern yellow pines *(5)*, with a density of about 32 pounds per cubic foot (about 2660 pounds of moisture-free wood for a 4- by 4- by 8-foot cord), have a marked advantage in pulp yield per cord over such northern softwoods as spruce and jack pine, which have a density of about 24 pounds per cubic foot (about 1990 pounds of moisture-free wood per cord).

Likewise the high-density hardwoods, such as birch (34 pounds per cubic foot), maple (35 pounds per cubic foot), beech (34 pounds per cubic foot), green ash (32 pounds per cubic foot), bitter pecan (37 pounds per cubic foot), sugarberry (31 pounds per cubic foot), and blackjack oak (40 pounds per cubic foot) also have the advantage of higher pulp yields per cord over many of the softwoods, and some advantage, perhaps, even over the Southern yellow pines, e.g., the yield of air-dry sulphate pulp from blackjack oak runs as high as 1,565 pounds per standard cord, that is, about 1.28 cords per ton of air-dry pulp; whereas the yield of kraft pulp from the Southern pines is approximately 1,335 pounds of air-dry pulp, or about 1.50 cords per ton of air-dry pulp. This is an increase of more than 17% in yield from the hardwood over that from the softwood.

Considering pulp yields on the basis of an equal weight of wood, selection of species of high-recoverable cellulose content is of prime importance. The hardwoods are not lacking in this respect, e.g., the cellulose content of aspen often runs as high as 65%; cottonwood, 63%; black willow, 62%; and sweetgum, 61%. Even though some of these species are comparatively low in density, the yield of air-dry pulp per cord for aspen (1070 pounds) and sweetgum (1210 pounds) compares favorably with those from Northern spruce (1020 pounds) and jack pine (980 pounds).

Advantages and Disadvantages of Hardwoods for Pulping

Aside from their short fibers one of the main disadvantages of hardwoods for pulping is the difficulty encountered in removing the bark except during the peeling season. Some mills, however, have found that the bark offers no great obstacle in pulping even for the production of bleached pulps, although the percentage yield of pulp from unpeeled wood is lower than that from peeled wood and the chemical consumption is higher. Utilization of wood with the bark on has the advantages that the wood may be cut and used at any time of the year and that some pulp is recovered from the bark itself. Although the mills now cooking wood with the bark on are doing it as a war-time measure, the advantages may be such that this practice can be continued in the era of peace to follow.

Hardwoods have other advantages aside from ease of pulping and high yield. They can often be used advantageously in many products by blending their fibers with the longer-fibered pulps from coniferous species to give improved sheet properties. This can be accomplished either by mixing in the beater or by actually cooking mixtures of hardwood and softwood chips.

Kraft Pulping of Hardwood-Pine Mixtures

To demonstrate the feasibility of pulping mixtures *(6)* of hardwoods and softwoods, Southern yellow pine chips were mixed in equal proportion by weight with chips of each of a number of hardwoods. The several hardwoods employed were: sweetgum, black willow, Southern cottonwood, American elm, sugarberry, green ash, and bitter pecan. These 50-50 mixtures of hardwood and pine chips were pulped by the sulphate process under conditions suitable for reducing the pine. Almost complete pulping of both types of wood resulted. The highest amount of screenings obtained for any mixture (sugarberry-pine) was only 1.3%. Except for resistance to tear, the strength properties of the pulps obtained were practically equal to those obtained from the pine alone. The resulting pulps were made into 16-point liner boards on the laboratory fourdrinier paper machine. The strength properties of the liner boards, with the exceptions of somewhat lower tearing resistance and folding endurance, were practically equal to those of the liner board made from 100% Southern yellow pine. These experiments indicate the possibility of using a large portion of hardwoods for the manufacture of a high-tonnage product. Other large-tonnage products in which hardwoods have possibilities are corrugating board and newsprint.

Pulping Hardwoods by High-yield Methods

Hardwoods are especially adapted to reduction by high-yield pulping methods, such as the sulphate semichemical *(7)* and the neutral sulphite semichemical *(8)* processes. These methods consist of a short cooking treatment with small percentages of either soda or sulphate chemicals or neutral sodium sulphite followed by mechanical disintegration of the softened or partially cooked chips. With any of these chemicals, the cooking process can be so controlled as to produce upwards of 75% yield of moisture-free pulp from the hardwoods.

In operating the sulphate semichemical process on southern hardwoods about one-half the amount of

chemicals at one-half the concentration commonly used in the commercial operation of the sulphate process was used in laboratory experiments. After fiberizing the softened, partially cooked chips in either a disk-type attrition mill or a beater, 9-point corrugating board equal or better in strength to pine groundwood, straw, and chestnut chip corrugating boards was made from black willow, cottonwood, American elm, sugarberry, green ash, bitter pecan, and blackjack oak. The stiffness and strength of these boards were observed to increase as the density of the wood decreased, although it was not proven that the board properties and wood density were influenced by the same factors.

The use of neutral sulphite cooking liquors has been practiced commercially in the manufacture of 9-point board from hardwood for some time, and therefore, needs no emphasis here. It is not amiss, however, to mention a few of the possibilities of the neutral sulphite semichemical process for pulping the hardwoods for the production of other paper products, such as newsprint and some of the finer grades of paper.

Use of Hardwoods in Newsprint and Fine Papers

Although experience has shown that papers made from 100% neutral sulphite semichemical pulps fall far short of newsprint quality, because of their tinniness, low opacity, and other undesirable characteristics, excellent papers of this type have been made experimentally at the Forest Products Laboratory from various combinations of hardwood neutral sulphite semichemical pulps and either softwood groundwood or mixtures of softwood and hardwood groundwood pulps. In some of these combinations the hardwood semichemical pulp component of the furnish has been varied from 15 to 40% of the fibrous content of the sheet. The hardwoods employed in these experiments were sweetgum and black tupelo of the South and aspen and birch of the northern states. The softwood groundwood pulps were made from Southern yellow pine, Northern jack pine, and spruce. It was found that the hardwood content of newsprint quality paper can be satisfactorily increased to as high as 80% of the total fiber furnish through the use of birch groundwood and semichemical pulps combined with spruce groundwood *(9)*. Similar results could very likely be obtained from the southern tupelos. This work indicates the possibility that newsprint may be made from a wood supply consisting almost wholly of hardwoods.

Aside from their use unbleached in the high-tonnage grades, hardwood neutral sulphite semichemical pulps can be bleached to a high degree of brightness by multistage bleaching methods for use in the finer grades of paper. Of special interest in this connection is the fact that their strength properties increase remarkably on bleaching. The bleached semichemical pulps hydrate rapidly and retain their strength during processing of the fibers. These properties are particularly significant in the production of greaseproof and bond papers, e.g., a 100% hardwood bond paper was made with little processing from a furnish consisting of 54% bleached sweetgum neutral sulphite semichemical pulp and 46% of bleached black tupelo acid sulphite pulp. The quality of this bond sheet was equal to that of good commercial softwood sulphite bond paper.

Hardwood Pulps with Wide Range of Physical Properties

It is possible to produce white pulps having a wide range of physical properties and chemical composition through chlorination and bleaching, followed by controlled alkaline extraction of hardwood neutral sulphite semichemical pulps, e.g., a series of pulps having properties ranging from those suitable for glassine papers to a high quality alpha-cellulose for dissolving purposes have been obtained experimentally at the Forest Products Laboratory by this procedure. It is of interest to note that the alpha-cellulose thus obtained is unusually high in viscosity and its recovery runs as high as 50% of the weight of the wood.

Hardwoods are usually associated with the production of comparatively low-strength, bulky pulps. Other pulps of exceedingly high strength properties *(10)*, however, have been obtained from some of the hardwoods if, instead of partial cooking, they were reduced with neutral sulphite cooking liquors to yields of about 40% (moisture-free basis). Birch, for example, when cooked in this way gave a pulp equal in strength to kraft pulps from the coniferous species and, in addition, had a much lower bleach requirement (a brightness of 78 being obtained with only 5% of chlorine).

Sulphite Pulping of Southern Hardwoods

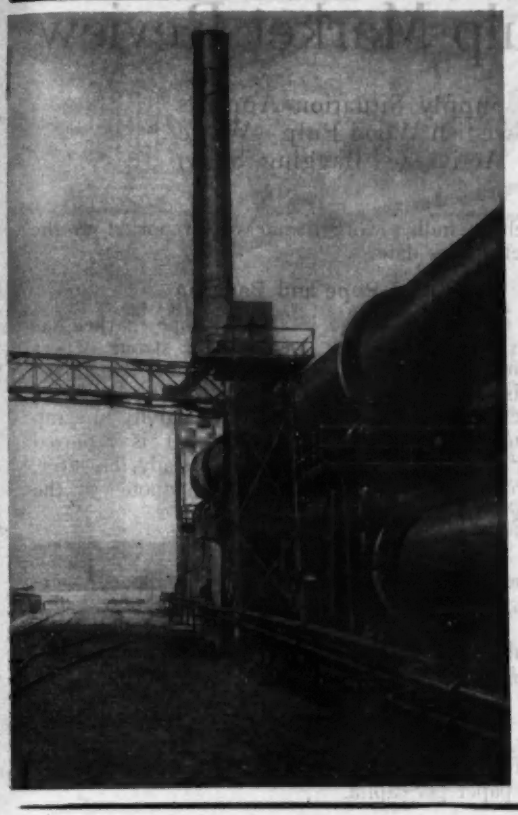
Although the sulphite process has found only limited application thus far in the South, a few remarks regarding the possibility of pulping some of the southern hardwoods by this method are of interest. Experiments have indicated that conventional pulping procedures are satisfactory for pulping such species as black willow, Southern cottonwood, sugarberry, swamp tupelo, and others even though the density of the wood varies widely among the several species (23.5 to 34 pounds per cubic foot). An example illustrating this was shown by the experimental production of writing, book, and greaseproof papers from swamp tupelo *(11)*.

Conclusions

The results thus far obtained on the pulping of various species of hardwoods indicate that many of them can be pulped by all the commercial chemical processes and that the pulps obtained possess qualities suitable for a wide variety of uses, especially for papers of the high-tonnage classes. Improved strength can be obtained from hardwood pulps prepared by modifications of these processes. If advantage is taken of the various means of developing the more desirable properties in hardwood pulps herein indicated, the forest resources of the United States should supply all the pulpwood needs of a much expanded industry.

Literature Cited

1. Smith, C. G., Pulpwood production data for Region 8, 1942, U. S. Forest Service, Atlanta, Ga.
2. Eldredge, I. F., Occasional Paper No. 82, Southern Forest Experiment Station (May 16, 1939).
3. Bray and Martin, *Paper Trade J.* 113, No. 25: 35 (Dec. 18, 1941).
4. Bray, Martin, and Schwartz, *Paper Trade J.* 105, No. 24: 39 (Dec. 9, 1937).
5. Bray, Schafer, and McGovern, *Paper Mill News* 67, No. 39: 122 (Sept. 23, 1944).
6. Martin, J. S., *Southern Pulp and Paper J.* 6, No. 7: 13 (Dec. 15, 1943).
7. Bray and Martin, *Tech. Assoc. Papers* No. 27, 234 (1944).
8. McGovern and Chidester, U. S. Forest Products Laboratory Mimeo. No. 1292.
9. Schafer and Pew, *Paper Trade J.* 116, No. 4: 25 (Jan. 28, 1943).
10. Chidester and McGovern, *Paper Trade J.* 108, No. 6: 31 (Feb. 9, 1939).
11. Chidester, G. H., *Paper Trade J.* 93, No. 10: 51 (Sept. 3, 1931).



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New York Paper and Pulp Market Review

Prospect of A More Favorable Paper Supply Situation Appears Good and Contingent Upon Imports of Swedish Wood Pulp—Waste Paper Salvage Excellent — All Rags Active — Bagging Slow.

Office of the PAPER TRADE JOURNAL,
Wednesday, May 23, 1945.

Demand in the wholesale market continues heavy for major types of paper and the supply situation is tight. Supply in the future appears more favorable but dependent upon the resumption of exports of Swedish pulp. Regardless of the amount of direct shipments from Sweden to the United States, domestic needs are expected to be fulfilled by any substantial increase in the distribution of wood pulp. More optimism is reflected in current reports received from manufacturers' representatives, jobbers, and general paper merchants.

Changes in Limitation Order L-120, controlling standardization and simplification of paper and paperboard, were announced on May 18. Amendment to Direction No. 1, requires weight limits set out in the several schedules of the order, shall determine the weights of new paper produced and used for converting purposes. Another change is the inclusion of bleached kraft envelope paper in the same field as book grades of envelope paper, which places a maximum weight for white paper for commercial envelopes at 20-pound folio.

The index of general business activity for the week ended May 12 declined to 141.4, from 145.3 for the previous week, compared with 144.6 for the corresponding week in 1944. The index of paperboard production was 160.4, compared with 164.3 for the previous week, and with 157.6 for the corresponding week in 1944.

Paper production for the week ended May 12 was estimated at 85.4%, compared with 87.6% for 1944, with 91.1% for 1943, with 97.8% for 1942, and with 98.6% for the corresponding week in 1941.

Paperboard production for the week ended May 12 was 93.0%, compared with 95.0% for 1944, with 96.0% for 1943, with 82.0% for 1942, and with 84.0% for the corresponding week in 1941.

Wood Pulp

The outlook for an increased supply of wood pulp appears favorable, but over-optimism is scarcely warranted by the indefinite status of the supply situation at this date. Sweden is reported in various quarters to be anxious to ship a relatively large tonnage of pulp to the U. S. The only cited deterrent is price. Reports indicate that Swedish exporters desire about 5% more than the present OPA ceiling price permits.

U. S. wood pulp output in the first 1945 quarter was 4.5 above 1944, and 7.8% larger than in 1943. Imports were 5% less than in 1944, and 17% under 1943.

Rags

Demand for new cotton cuttings is active. The supply situation continues to be reported rather unfavorable, with no expectation of any immediate increase in supplies, which is entirely contingent upon more activity in the cutting-up-trade. Prices are firm on all grades at ceiling levels.

Old cotton rags are in active demand. The roofing grades, old whites and old blues, are in steady demand by felting mills. More firmness is reported in the market at this date.

Old Rope and Bagging

No important change in the old rope market has been reported this week. Demand for strong papers continues large and more good Manila fiber is required than is now available. Prices are at ceiling levels.

The slight improvement in trading activity in scrap bagging has declined and the market is reported rather slow at this date. Prices are steady, however, and roofing bagging continues to be quoted at the ceiling price of $1.35.

Old Waste Paper

Heavy all-over requirements for paper and paperboard, which the government agencies expect will continue for many months, continues to maintain a critical supply situation in all grades of paper stock. Consumption of waste paper is currently running at about 573,000 tons monthly, with consumption of wood pulp about 873,000 tons. Collections of waste paper in April, totaling 263,834 tons, averaged for the first four months of 1945, or about 53 pounds of waste paper per capita.

Twine

No important change in demand or supply has been reported in the twine market this week. Prices are firm on all the better grades of fiber twines and cordage.

No Price Increase in Felts

H. Short, managing director of the Kenwood Mills Ltd., Arnprior, Canada, writes as follows:—

"The last paragraph of an article on the Canadian paper industry from your regular correspondent in Montreal, which appeared in the issue of the PAPER TRADE JOURNAL of April 19, 1945, has been drawn to my attention. This article is not according to the facts and we would appreciate it if you would clear this matter up for us.

"The paragraph in question states—'To the above may be added the fact that increasing costs of manufacturing are a matter of anxious concern. As typical, it may be mentioned that one company reports that the principal raw materials such as alum, coal, felts, pulp stones, resin and pulpwood have increased in price by over 50% since 1940, while basic wages have increased by approximately 45% since May 1940.'

"We, of course are entirely concerned with felts and this statement that the price of felts has increased by over 50% since 1940 is not correct. As a matter of fact, no price increase in papermakers felts has been made in Canada since 1940, the last being made in December, 1939, and at that time the increase amounted only to 15%. I understand, also, that the last increase in the same product in the United States was during the early part of 1940, and that increase was only 10%. Since then there has been no change."

IN PULP AND PAPER MILLS CALLS FOR FULL SMOOTH POWER FLOW

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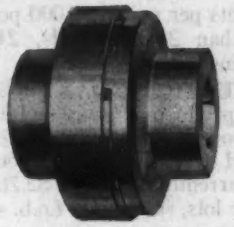

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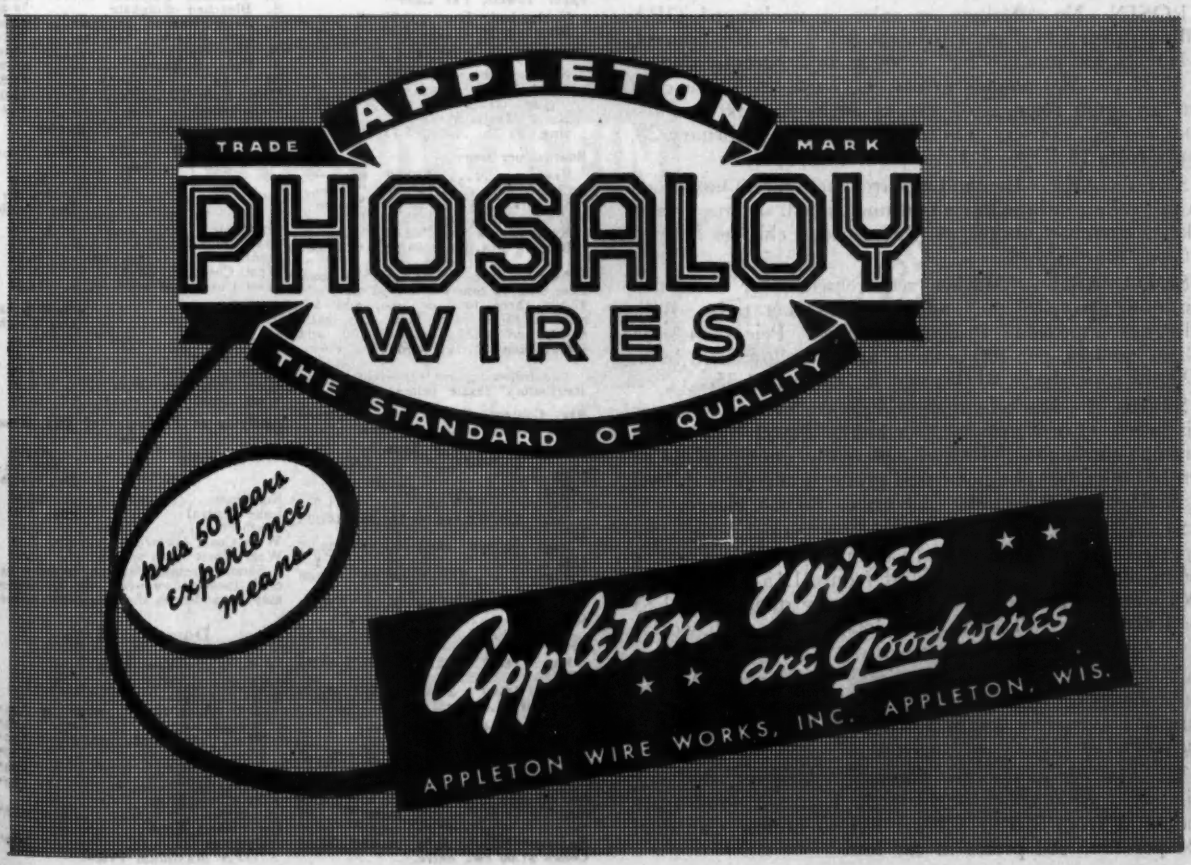


MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, May 23, 1945.

BLANC FIXE—The market for blanc fixe is reported unchanged for the week. Current demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton.

BLEACHING POWDER — Current demand is reported active. Supply situation reported satisfactory. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point.

CAUSTIC SODA—Supply situation continues tight, with production good and very heavy all-over demand. Manpower limits output. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CHINA CLAY—Demand for some grades of china clay is reported fair this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Production reported maintained at high level. Paper allocated 47,705 tons in current quarter. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—No offerings or sales at unchanged OPA ceiling prices: "G" gum rosin at $5.79 per 100 pounds, in barrels, Savannah. "FF" wood rosin is curently quoted at $5.75 per 100 pounds in barrels, New York. Seventy per cent gum rosin is offered at $6.06 per 100 pounds, f.o.b. works. Conservation Order M-387 of February 28, limits rosin to 70% of 1944 quota for paper.

SALT CAKE—Demand reported moderate. Quotations on salt cake continue to remain unchanged. Domestic salt cake is currently quoted at $15 per ton; chrome cake at $16 per ton.

SODA ASH — Market requirements for soda ash continue heavy. Supply adequate. Market tight. Bulk deliveries improved. Prices unchanged. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Market supply of cash corn reported larger this week. Corn prices at ceilings. Starch quotations continue unchanged. Pearl is currently quoted at $3.72 per 100 pounds. The powdered grade is currently quoted at $3.83 per 100 pounds. All prices f.o.b. Chicago.

SULPHATE OF ALUMINA — Supply situation reported good. Quotations are unchanged. Prices on the commercial grades are quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $1.85 per 100 pounds. All prices in car lots, in bags, f.o.b. works.

SULPHUR—Demand is reported active for sulphur. Quotations on all grades continue unchanged. Annual contracts are currently quoted at $16 per long ton, f.o.b. mines. The current contract prices at Gulf Ports remains unchanged at $17.50 per long ton.

TALC—The market for domestic talc is reported fair this week. Quotations unchanged. Domestic grades are quoted at from $16 to $21 per ton, at mines. Canadian $24 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	*$61.00	@	—
Sheets	69.00	@	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*$0.00	@	—
Chip	*50.00	"	—
Sgl. Mla. Lt. Chip	*62.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1	$39.10	@	$46.00 $40.25 @ $47.25
100% Rag	32.20	"	37.75 33.35 " 39.25
85% Rag	....	"	.... 29.90 " 35.00
75% Rag	23.00	"	27.00 24.15 " 28.25
65% Rag	....	"	.... 22.80 " 27.75
50% Rag	18.70	"	22.75 19.90 " 24.25
25% Rag	16.40	"	20.00 17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers
No. 1	$10.55	@	$12.75 $11.70 @ $14.25
No. 2	9.65	"	11.75 10.80 " 13.25
No. 3	9.20	"	11.25 10.35 " 12.50
No. 4	8.90	"	10.75 10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$13.[illegible]
No. 2 Glossy Coated	12.40	"	14.[illegible]
No. 3 Glossy Coated	11.60	"	13.[illegible]
No. 4 Glossy Coated	11.15	"	12.[illegible]
No. 1 Antique (watermarked)	10.25	"	11.[illegible]
No. 2 Offset	9.60	"	11.[illegible]
A Grade E. F.	9.35	"	10.[illegible]
A Grade S. & S. C.	9.60	"	11.[illegible]
B Grade E. F.	8.85	"	10.[illegible]
B Grade S. C.	9.10	"	10.[illegible]
C Grade E. F.	8.55	"	9.[illegible]
C Grade S. C.	8.80	"	10.[illegible]
D Grade E. F.	8.25	"	9.[illegible]
D Grade S. & S. C.	8.50	"	9.[illegible]

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.[illegible]
Unbl. Softwood Sulphite	74.[illegible]
Bl. Hardwood Sulphite	83.[illegible]
Unbl. Hardwood Sulphite	71.[illegible]
Bl. Mitscherlich	81.[illegible]
Unbl. Mitscherlich 72.00 @	82.[illegible]
N. Bleached Sulphate	86.[illegible]
S. Bleached Sulphate	79.[illegible]
N. Semi-Bleached Sulphate	82.[illegible]
S. Semi Bleached Sulphate	75.[illegible]
N. Unbl. Sulphate	73.[illegible]
S. Unbl. Sulphate	63.[illegible]
Bl. Soda	76.[illegible]
Unbl. Soda	72.[illegible]
Groundwood	50.[illegible]

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices

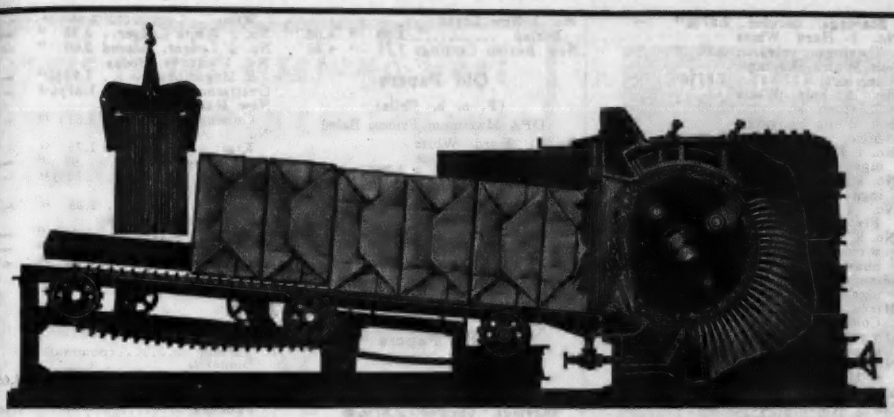
Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

*OPA Maximum Prices



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Bale Pulper

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PACKING PRODUCTS COMPANY

271 Church Street New York 13, N. Y.

Old Rags

White, No. 1—		
Repacked	*1.80	—
Miscellaneous	*1.30	—
White, No. 2—		
Repacked	*2.50	—
Miscellaneous	*2.65	—
Third and Blues—		
Repacked	*2.20	—
Miscellaneous	*1.80	—
Roofing Rags—		
No. 1	*1.55	—
No. 2	*1.45	—
No. 3 (bagging)	*1.35	—
No. 4	*1.35	—
No. 5A	*1.35	—
Old Manila Rope	5.75	—

*OPA Maximum Prices.

Foreign Rags

Pre-War Quotations

All Prices nominal

New Rags		
New Dark Cuttings	2.25 @	2.40
New Mixed Cuttings	2.00	2.20
New Light Silesias	5.50	5.75
Light Flannelettes	5.50	5.75
New White Cuttings	7.00	7.50
New Light Oxfords	4.00	4.50
New Light Prints	3.00	3.25
Old Rags		
No. 1 White Linens	7.50	8.50
No. 2 White Linens	6.50	7.50
No. 3 White Linens	4.50	—
No. 4 White Linens	2.25	3.25
No. 1 White Cotton	4.25	4.75
No. 2 White Cotton	3.25	3.75
No. 3 White Cotton	2.50	3.00
No. 4 White Cotton	1.90	2.20
Extra Light Prints	2.00	2.40
3rd. Light Prints	1.75	2.15
Med. Light Prints	1.55	1.95
Dutch Blue Cottons	2.25	2.50
French Blue Linens	3.00	—
Checks and Blues	2.00	—
Linsey Garments	1.90	2.00
Dark Cottons	1.50	1.60
Old Shopperies	1.30	1.45
New Shopperies	1.45	1.50
French Blues	2.25	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—		
Foreign	Nominal	
Domestic	3.25 @	3.30
Wool Tares, light	3.25	3.50
Wool Tares, heavy	3.50	3.75
Bright Bagging	3.25	3.50
Manila Rope—		
Foreign	—	—
Domestic	*5.75	—
Jute Threads	5.50	—
No. 1 Sisal Strings	*4.00	—
Mixed Strings	2.00	—

*OPA Maximum Prices.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½ @	—
No. 1 Hard White Envelope Cuts	3.12½	—
No. 1 Hard White Shavings, unruled	2.87½ @	—
No. 1 Hard White Shavings, ruled	2.50	—
Soft White Shavings, one cut	2.87½	—
No. 1 Soft White Shavings	2.50	—
Soft White Shavings, Misc.	2.15	—
No. 1 Fly Leaf Shavings	1.67½	—
No. 2 Fly Leaf Shavings	1.12½	—
No. 1 Mixed Groundwood Fly Leaf Shavings	1.25	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	—
Mixed Colored Shavings	.75	—
Mixed Groundwood Colored Shavings	.90	—
Overissue Magazines	1.67½	—
No. 1 Heavy Books & Magazines	1.92½	—
Mixed Books	1.10	—
No. 1 White Ledger	2.30	—
No. 2 Mixed Ledger, colored	2.00	—
New Manila Envelope Cuttings, one cut	2.87½	—
New Manila Envelope Cuttings	2.65	—
Extra Manilas	1.95	—
Mixed Kraft, Env. & Bag Cuttings	2.75	—
Kraft Envelope Cuttings	3.25	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	—
New 100% Kraft Corrugated Cuttings	2.25	—
No. 1 Assorted Old Kraft	1.75	—
New Jute Corrugated Cuttings	.90	—
Old 100% Kraft Corrugated Containers	1.75	—
Old Corrugated Containers	1.40	—
Box Board Cuttings	.72½	—
White Blank News	1.65	—
Overissue News	1.10	—
No. 1 News	1.00	—
No. 1 Mixed Paper	.95	—
Old Corrugated Containers	.82½	—
Mill Wrappers	1.10	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—		
India	.21 @	—
White Hemp	.21	—
Fine Polished—		
Fine India	.36	—
Unpolished—		
Box	.17½	—
Paper Makers	.17	—
Tube Rope	.19	—
Wall Paper	.20½	—
Wrapping	.23	—
Soft Fiber Rope	.19	—
Cotton	.23	—
(Hard Fiber)		
Medium Java	.18	—
Mex. Sisal	.16	—
Manila	—	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07½
New White No. 2	.05½
Light Silesias	.05½
Black Silesias, soft	.03½
New Unbleached	.07½
Washable Prints	.04½
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01½
Fancy Percales	.04½
New Black Soft	.03½
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04½
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03½

Domestic Rags (Old)

White No. 1 — Repacked	3.80	—
Miscellaneous No. 1	3.20	—
Miscellaneous No. 2	2.65	—
White No. 2 — Repacked	2.90	—
Thirds and Blues—		
Miscellaneous	1.80	—
Repacked	2.20	—
Black Stockings— (Export)	Nominal	
Roofing Stock—		
Foreign No. 1	Nominal	
Domestic No. 1	1.55	—
Domestic No. 2	1.45	—
Roofing Bagging	1.35	—
Old Manila Rope	1.75	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—		
Foreign	Nominal	
Domestic	3.00	3.10
No. 1 Clean bright—		
Sisal Strings		.04
No. 2 Clean bright—		
Sisal Strings		.03
Sisal Jute	.02½	.02¾
Scrap—		
No. 1	3.25	3.50
No. 2	1.75	1.80
Wool Tares, heavy	4.00	4.25
No. 1 New Linen Burlap	3.90	4.00
New Burlap Cuttings	3.75	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½ @	—
No. 1 Hard White Shavings, unruled	2.87½	—
Soft White Shavings, one cut	2.50	—
White Blank News	1.65	—
Soft White Shavings, Misc.	2.15	—
No. 1 Fly Leaf Shavings	1.67½	—
No. 2 Fly Leaf Shavings	1.12½	—
No. 1 Groundwood Fly Leaf Shavings	1.25	—
No. 2 Groundwood Fly Leaf Shavings	.90	—
Mixed Colored Shavings	.75	—
New Manila Envelope Cuts, one cut	2.87½	—
Hard White Envelope Cuts, one cut	3.37½	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	—
Mixed Kraft Env. & Bag Cuttings	2.75	—
Kraft Envelope Cuttings	3.25	—
No. 1 Heavy Books & Magazines	1.92½	—
New Manila Envelope Cuts, one cut	2.87½	—
New Manila Envelope Cuttings	2.65	—
White and Colored Tabulating Cards	2.25	—
Ground Wood Tabulating Cards	1.35	—
White Blank News	1.65	—
No. 1 Assorted Old Kraft	1.75	—
No. 1 Mixed Paper	.95	—
Overissue News	1.10	—
Box Board Cuttings	.72½	—
New Corrugated Cuttings, Kraft	2.25	—
Old 100% Kraft Corrugated Containers	1.75	—
Old Corrugated Containers	1.40	—
Jute Corrugated Cuttings	1.07½	—

Bagging

(F. o. b. Boston)

Gunny Bagging—		
Foreign	(nominal)	
Domestic	2.75 @	2.90
Sisal Rope No. 1	*4.75	—
Sisal Rope No. 2	*4.25	—
Mixed Rope	—	1.55
Transmission Rope—		
Foreign	(nominal)	
Domestic	2.75	3.00
Manila Rope—		
Foreign	(nominal)	
Domestic	5.75	
Soft Jute Rope	4.50	5.00
Jute Car Threads	3.00	3.50
Bleachery Burlap	8.50	9.00
Scrap Burlap—		
Foreign	(nominal)	
Domestic	3	3.25
South American	—	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½ @	—
No. 1 Hard White Shavings, ruled	2.50	—
Soft White Shavings, Misc.	2.15	—
No. 1 Fly Leaf Shavings	1.67½	—
No. 2 Fly Leaf Shavings	1.12½	—
No. 1 Groundwood Fly Leaf Shavings	1.25	—
No. 2 Groundwood Fly Leaf Shavings	.90	—
Mixed Colored Shavings	.75	—
New Manila Envelope Cuts, one cut	2.87½	—
Hard White Envelope Cuts, one cut	3.37½	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	—
Mixed Kraft Env. & Bag Cuttings	2.75	—
Kraft Envelope Cuttings	3.25	—
No. 1 Heavy Books & Magazines	1.92½	—
New Manila Envelope Cuts, one cut	2.87½	—
New Manila Envelope Cuttings	2.65	—
White and Colored Tabulating Cards	2.25	—
Ground Wood Tabulating Cards	1.35	—
White Blank News	1.65	—
No. 1 Assorted Old Kraft	1.75	—
No. 1 Mixed Paper	.95	—
Overissue News	1.10	—
Box Board Cuttings	.72½	—
New Corrugated Cuttings, Kraft	2.25	—
Old 100% Kraft Corrugated Containers	1.75	—
Old Corrugated Containers	1.40	—
Jute Corrugated Cuttings	1.07½	—

Bagging

(F. o. b. Boston)

Gunny Bagging—		
Foreign	(nominal)	
Domestic	2.75 @	2.90
Sisal Rope No. 1	*4.75	—
Sisal Rope No. 2	*4.25	—
Mixed Rope	—	1.55
Transmission Rope—		
Foreign	(nominal)	
Domestic	2.75	3.00
Manila Rope—		
Foreign	(nominal)	
Domestic	5.75	
Soft Jute Rope	4.50	5.00
Jute Car Threads	3.00	3.50
Bleachery Burlap	8.50	9.00
Scrap Burlap—		
Foreign	(nominal)	
Domestic	3	3.25
South American	—	3.25
Wool Tares—		
Foreign	(nominal)	
Domestic	4.25	
Aust. Wool Pouches	—	3.65
New Zealand Wool Pouches	—	3.35
New Burlap Cuttings	4.75	5.00
Heavy Baling Bagging	4.00	4.25
Paper Mill Bagging	2.50	3.00
No. 2 Roofing Bagging	1.35	—

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—		
New Light Prints	.04½ @	.04¾
Fancy Percales	.04¼	.04½
New White No 1.	.06¾	.07
New Light Flannelettes	.05½	.06
Canton Flannels, Bleached	.06	.06½
Underwear Cutters, Bleached	.06½	.06¾
Underwear Cutters, Unbleached	.05¾	.06
Silesias No. 1	.06	.06½
New Black Silesias	.05	.05½
Red Cotton Cuttings	.03½	.04
Soft Unbleached	.06½	.06¾
Blue Cheviots	.05½	.06
Fancy	.02½	—
Washable	.02½	—
Khaki Cuttings	.02½	.03
O. D. Khaki	.03½	.03½
Corduroy	.03½	.03½
New Canvas	.06½	.06½
B. V. D. Cuttings	.06½	.06½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—		
Repacked	3.80 @	—
Miscellaneous	3.20	—
White No. 2—		
Miscellaneous	2.65	—
Twos and Blues, Repacked	2.20	—
Old Blue Overalls	2.25	2.30
Thirds and Blues, Repacked	2.20	—
Miscellaneous	1.80	—
Black Stockings	3.50	4.00
Roofing Stock—		
No. 1	1.55	—
No. 2	1.45	—
No. 3	1.35	—
No. 4	1.35	—
No. 5, Quality A	1.35	—
Quality B	1.20	—
Quality C	.95	—
Old Manila Rope	5.75	—

*OPA Maximum Prices

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—		
No. 1 Hard White Envelope Cuts, one cut	1.37½ @	—
No. 1 Hard White Shavings, unruled	2.87½	—
No. 1 Soft White Shavings	2.50	—
No. 1 White Ledger	2.30	—
No. 1 Heavy Books & Magazines	1.92½	—
White Blank News	1.65	—
Mixed Kraft Env. & Bag Cuttings	2.75	—
No. 1 Assorted Old Kraft	1.75	—
Overissue News	1.10	—
No. 1 News	1.00	—
No. 1 Mixed Paper	.95	—
No. 1 Roofing Rags	1.55	—
No. 1 Roofing Bags	1.45	—

THIS IS THE LIFE! - NO MORE WORRIES SINCE I HAVE TURNED MY SALES OVER TO

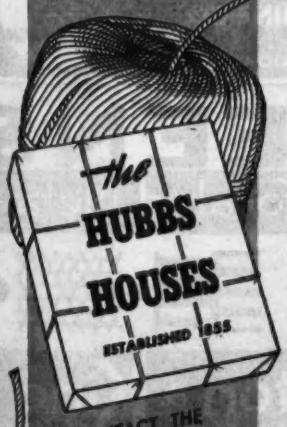
HUBBS HOUSES

IN THE EAST

Mills and converters desiring *bigger* sales and *better distribution* in Eastern United States are invited to use the long-established Hubbs Houses sales-making facilities. Compare the value of cashing in on our thousands of contacts with the cost and uncertainties of building, rebuilding or enlarging your own sales force.

FOR A **DISTRIBUTORSHIP** THAT MEANS **LEADERSHIP**

Here ... in America's No. 1 Market ... you can have a *Distributorship That Means Leadership.* The Hubbs House nearest you will welcome your inquiry.



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WAREHOUSES AT ALL THE ABOVE.

LOOK TO MAPICO FOR *Leadership*

MAPICO COLORS

PURE PRECIPITATED OXIDES OF IRON

for PERMANENCE

An outstanding characteristic of these fine pigments is their resistance to color change. They are light-fast and non-reactive to acids and alkalies.

Other qualities which have made Mapico Colors popular with paper makers everywhere are:

HIGH TINTING STRENGTH
GOOD FIBER ADHESION
SOFT TEXTURE
FINE PARTICLE SIZE

In spite of the fact that production of Mapico pigments is at its peak, heavy requirements for war production may make it difficult for you to secure desired quantities. Your patience in this respect is appreciated.

YELLOWS REDS BROWNS BLACK

COLUMBIAN COLLOIDS

We will gladly send samples and complete technical information

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Manufacturers of

ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

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KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

Mechanicville, New York
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Tyrone, Pennsylvania
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ARE YOU READY FOR "V" DAY?

Prepare NOW to Take Care of Increased Orders Which Will Come. Consider Necessary Repairs and Maintenance.

Also New Equipment of Improved Designs and Efficiency.

PAPER BAG MACHINERY—PAPER MACHINES
THE NEW MODEL "E" PAPER TRIMMERS

THE SMITH & WINCHESTER
MANUFACTURING COMPANY
Plant and Offices at South Windham, Connecticut

DON'T GUESS! TEST R.P.M.

With a MODEL "J" HAND TACHOMETER

Triple Ranges:
300— 1200 R.P.M.
1000— 4000 R.P.M.
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RUGGED-RELIABLE-CONTINUOUSLY INDICATING TYPE

WRITE FOR BULLETIN #706

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27 PARK PLACE NEW YORK N. Y.

LANGSTON

Slitters and Roll Winders

Noted for reliability and accuracy under the heavy pressure of high-speed production

SAMUEL M. LANGSTON COMPANY, CAMDEN, N. J.

Since 1901

Dietz MACHINE WORKS

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TOILET ROLL CONVERTING MACHINES
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For High-Speed, Dependable

PAPER CONVERTING MACHINES

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POTDEVIN

Paper Bag Machines, Aniline & Oil-Ink Presses, Waxing, Gluing, Varnishing, Laminating Machines.

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SCREENS of Perforated Metal

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J. Andersen & Company

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Importers of Pulp

BLEACHED AND UNBLEACHED SULPHITE, KRAFT PULP AND GROUND WOOD

QUALITY FOURDRINIER WIRES

for the Paper Industry

Since 1903

THE LINDSAY WIRE WEAVING COMPANY
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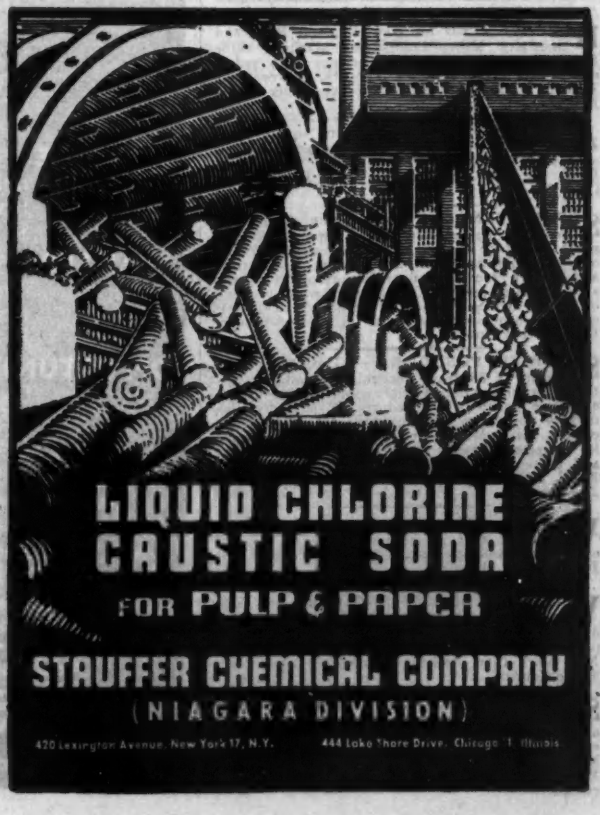
CLEVELAND 10, OHIO

Lindsay WIRES FOR PAPER MILLS



HELP WANTED

SPECIALTY SALESMEN

Young, ambitious — willing to learn. Desirable that he passes background of chemical or mechanical engineering. Great opportunity for advancement in paper converting field.

Address Box 45-289 care Paper Trade Journal. M-24

GRADUATE MECHANICAL ENGINEER

with 5 to 10 years experience in the paper industry to take active and responsible part in the selection, layout and installation of new equipment for long-term expansion program. Letters of inquiry giving experience and other pertinent information, including draft and marital status are to be directed to the Employment Manager, Union Bag & Paper Corporation, Post Office Box 570, Savannah, Georgia. Persons now engaged at highest skill in essential industry cannot be considered.

UNION BAG & PAPER CORPORATION
Savannah, Georgia M-31

WANTED

ENGINEERS and DESIGNING DRAFTSMEN experienced in pulp and paper mill design and process by Consulting Engineers. Address Box 45-146 care Paper Trade Journal. T.F.

HELP WANTED for New England Book and Specialty Mill — Fourdrinier Machine. One Beater Room Supervisor, experience with colors necessary. Three Machine Tenders. Three Back Tenders. Address Box 45-268 care Paper Trade Journal. M-24

ADJUSTOR—Experienced flat and square paper bag machines—good salary—permanent—Write or visit CUSTOM-MADE PAPER BAG CO., INC., 33rd St. & Skillman Ave., Long Island City, N. Y. J-7

SUPERINTENDENT for finishing department in large modern midwestern paper converting plant. Must be expert in laminating and coating of paper, plating, stack and friction calendering, and have a good chemistry background in paper and related materials. Knowledge of water-proofing of paper and application of lacquer and plastic coatings necessary. Address Box 45-210 care Paper Trade Journal. TF

SALARIED POSITIONS — This advertising service of 35 years' recognized standing negotiates for high salaried supervisory, technical and executive positions. Procedure will be individualized to your personal requirements and will not conflict with Manpower Commission. Retaining fee protected by refund provision. Identity covered and present position protected. Send for details. R. W. BIXBY, INC., 117 Delward Bldg., Buffalo, 2, N. Y. tf

WANTED—Chief Engineer to operate one machine mill in middlewest. State age and experience. Address Box 45-306 care Paper Trade Journal. M-31

WANTED—PROJECT ENGINEER and ENGINEERING DRAFTSMEN experienced in design and layout of pulp and paper mills and power plants for consulting engineering office in New York City. Address Box 45-300 care Paper Trade Journal. J-14

SALES MANAGER to supervise sales of lignin chemicals and plastics. Should have training and experience in technical selling and some knowledge of chemistry. Wisconsin location about one half time, balance traveling. MARATHON CORPORATION, Chemical Division, Rothschild, Wisconsin. M-31

HELP WANTED

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston, Mass.
Specializing in Paper Mill Personnel
Positions Now Open
Plant engineers $4,000 to $6,000 year
Chemists & chemical engineers and laboratory men
Finishing foreman
Sales manager kraft and board $9,000 to $12,000 year
Post-war planning engineer $6,000-$8,000 year
Felt superintendent and many others
We invite correspondence (strictly confidential) with employers seeking personnel and men seeking new positions. M-24

WORKING FOREMAN WANTED

Must know how to rebuild Slitters & Shooters—also general experience on all kinds printing & special machinery.

Reputable small plant in thriving New England City—45,000 population.

Wonderful opportunity for any earnest and ambitious man desirous of becoming part of the company. Address Box 45-308 care Paper Trade Journal M-31

WANTED — Licensed Steam Engineer. One capable of handling maintenance and operation in paper mill on Pacific Coast. Apply in own handwriting stating experience, references and salary wanted. Address Box 45-244 care Paper Trade Journal. TF

CLASSIFIED ADVERTISING

HELP WANTED —5c a word. Double rate for heavy face type. Minimum charge $1.25.

SITUATIONS WANTED —5c a word, double rate for heavy face type. Minimum charge $1.25. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE —5c a word. Double rate for heavy face type. Minimum charge $1.25.

WANTED —5c a word. Double rate for heavy face type. Minimum charge $1.25.

OPPORTUNITIES —5c a word. Double rate for heavy face type. Minimum charge $1.25.

Classified advertising space may also be purchased at $3.00 per single column inch.

All classified advertisements are payable in advance.

If box number is used— 35 cents additional.

Address Replies

to advertisements appearing under Box Numbers in care of
PAPER TRADE JOURNAL
15 West 47th Street
New York 19, N. Y.

HELP WANTED

Unusual opportunity is open for a Salesman or Executive with $25,000 to become associated with an established and profitable Paper and Twine Jobbers located in New York City. State full experience, age, qualifications, etc. Correspondence will be held in strict confidence, Address Box 45-304 care Paper Trade Journal.

M-31

One Grad. Chemist or Chemical Engineer with at least two years Pulp or Paper Mill experience for large diversified Pulp & Paper Mill at Ocean Falls, B. C., on Canadian West Coast.

Good opportunity for right man Age 24-35 Salary $200.00-$250.00 per month

Apply Pacific Mills Limited, Ocean Falls, British Columbia.

If a technical person within the meaning of P.C. 246 Part 3 January 1943, do not apply unless your services are available under regulations administered by the Wartime Bureau of Technical Personnel. M-24

A PULP AND PAPER COMPANY LOCATED IN THE NORTHEAST COAST REGION

would like to receive applications from

STEAM PLANT SUPERINTENDENTS
STATIONARY ENGINEERS

who are available for immediate employment or interested in post-war employment.

MEN WITH EXPERIENCE IN PULP AND PAPER MILL OPERATIONS ARE PREFERRED

Address Box 45-275 care Paper Trade Journal. M-31

A PULP AND PAPER COMPANY LOCATED IN THE NORTHEAST COAST REGION

would like to receive applications from

GRADUATE CHEMISTS
GRADUATE CHEMICAL ENGINEERS
GRADUATE MECHANICAL ENGINEERS
COMBUSTION ENGINEERS

who are available for immediate employment or interested in post-war employment.

MEN WITH EXPERIENCE IN PULP AND PAPER MILL OPERATIONS ARE PREFERRED

Address Box 45-274 care Paper Trade Journal. M-31

PLANT MANAGER—Established Philadelphia Plant making high quality bags (self-opening, squares, flats, sacks, specialties) want plant manager experienced in handling production and personnel in union shop. Give full qualifications. Replies held in strictest confidence. Address Box 45-196 care Paper Trade Journal. M-31

WANTED—CHIEF CHEMIST for pulp and paper mill located on Pacific Coast. Apply in own handwriting giving references, experience and other pertinent information. Address Box 45-243 care Paper Trade Journal. TF

COST ACCOUNTANT—.009 straw or box board mill located in the middle west. State salary wanted. Address Box 45-262 care Paper Trade Journal. M-24

RESEARCH TECHNICIAN with knowledge of hard and soft wallboard. Some experience in plastics desirable. This is really an opportunity for an able man to get in on the ground floor with a new subsidiary of an old established concern. Replies will be treated confidentially. Address Box 45-284 care Paper Trade Journal. M-24

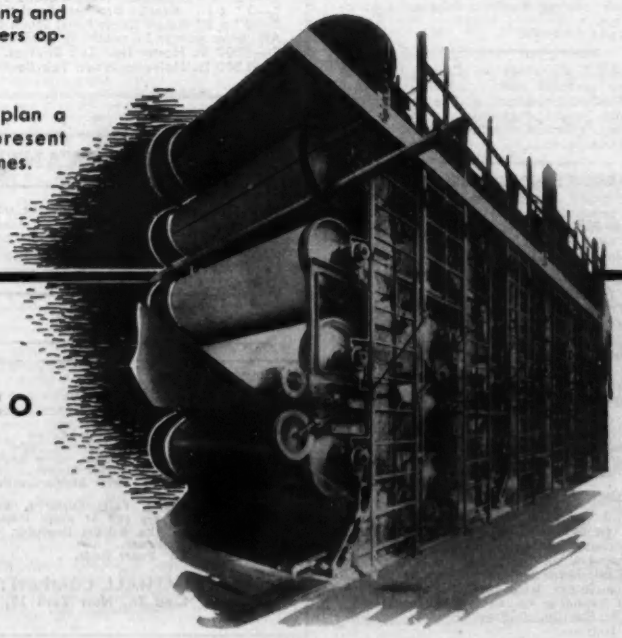
WHICH SHALL IT BE?

WHICH! A long drawn out horizontal dryer extending into the next county with machine and back tenders so far apart they have to wig-wag each other—or a Vertical dryer that shortens up the machine, utilizes overhead room, does a better job of drying and gives machine and back tenders opportunity to get acquainted!

WHEN! Today—now—is the time to plan a vertical section, using your present dryers but in new vertical frames.

WHY! Because the more modern and the more efficient your dryer, the better you'll fare in the years ahead. The same applies to your vat and press sections.

Verticals for practically all grades.



THE BLACK-CLAWSON CO.
HAMILTON, OHIO

Shartle Dilts

Divisions:
Shartle Bros. Machine Co., Middletown, Ohio.
Dilts Machine Works, Fulton, New York.

HELP WANTED

WANTED — ASSISTANT EXPORT MANAGER—Well known paper export house desires assistant export manager preferably with good knowledge Spanish. Attractive terms for right man. Please reply to Box 45-286 care Paper Trade Journal. M-24

MACHINE TENDER for cylinder machine operations. Must be experienced at this particular kind of machine operations. Prefer high school graduate or equivalent. Address Box 45-293 care Paper Trade Journal. TF

LONG ESTABLISHED well financed corporation wants Chemical Engineer, experience preferred in wallboard research, who is capable of directing research control laboratory in utilization of wood waste; permanent position; our personnel advised of this ad; give full particulars; strict confidence respected. Address 45-294 care Paper Trade Journal. J-7

HELP WANTED—Men for Shift Chemist control work in pulp and paper mill located in the Southwest. Technical education not essential but mill experience desirable. Hiring in accordance with W.M.C. regulations. Address Box 45-309 Care Paper Trade Journal. J-14

SITUATIONS WANTED

Development Chemist — 10 years supervisory experience in development and production of items such as coated, printed, laminated papers, films, foils, fabrics, bags, bread wraps. Address Box 45-305 care Paper Trade Journal.

J-7

SUPERINTENDENT available for Board Mill. High grade folding boards, sulphite groundwood specialties, kraft, etc. Address Box 45-270 care Paper Trade Journal. M-24

ACCOUNTANT 25 years in Board Industry. Experience includes costs—payroll—personnel work—billing—office manager and some selling. Wishes to join sound organization. Your confidential replies solicited. Address Box 45-279 care Paper Trade Journal. M-24

PAPER CONVERTING FOREMAN—18 years experience paper cutting, straight and die cutting. Many years successful handling of men. Seeks position Metropolitan Area. Address Box 45-278 care Paper Trade Journal. J-28

SENIOR PURCHASING AGENT open for post war position. Over 20 years experience, including 7 years with pulp and paper industry, and government contracting since start of war. Good education; sterling character. Inquiries invited. Address Box 45-290 care Paper Trade Journal. M-31

CYLINDER MACHINE TENDER wishes to locate on east or west coast. Have references and experience on all types cylinder lightweight and boards. Address Box 45-299 care Paper Trade Journal. M-24

CHEMIST—B. S. in Chem. Graduate training in Pulp and Paper School. 10 years experience in pulp and paper mill and converting plants. Practical experience with thermoplastic and thermosetting resins and all types of adhesives. Graduate training in Management Subjects. Wishes position with a future with progressive company. Employed but available on short notice. Age 32. Classified II-B. Family. Address Box 45-298 care Paper Trade Journal. J-7

FOR SALE

FOR SALE

FOR SALE

by JACK ROSS PAPER MACHINERY CO.

17 Porter Avenue, Newark 8, N. J.
Waverly 3-5675

1—Improved Paper Machinery Company 3 roll Hydraulic Wet Machine. Cylinder Mold 36" diameter 84" face. Complete with enclosed drive. Prints and photos on request. Used 1 year.
2—Pusey & Jones Horizontal Digesters. Welded equipment with Logan Circulators. 24' high x 7' diameter. 125# working pressure. Prints on request.
1—Guyton-Cumfer Saturator. Tank 50" wide. 5 gates complete. Prints on request.
1—Waterbury Hydraulic Variable Speed Transmission. Size 50—Type C. Maximum HP 80. Maximum RPM 400.
1—Moore & White Flat Screen. 16 plates 12" x 24" .015 cut.
1—Moore & White Flat Screen. 20 plates 12" x 24" .015 cut.
1—Packer Flat Screen. 10 plates 12" x 42" .015 cut.
1—36" diameter x 84" face Cylinder Mold. New backing wire. New face Wire. 65 mesh. Extra heavy construction.
1—2" to 6" Oster Pipe Threading Machine. Direct connected to motor 440-3-60.
2—#3 Vertical Reeves Drives totally enclosed—ball bearing equipped. Ratio 5:1. Used year and a half.
1—15 h.p. Reliance Motor 220-440-1750 R.P.M. Ball bearing. Used year and a half.
4—Driers—112" face x 48" diameter complete with 2 deck frames, gears, etc.
2—Norwood Engineering Co.—44" two roll platers direct connected to 15 h.p. motors.
1—90" Voith Inlet.
1—A. D. Wood Saveall—cylinder—60" face by 48" diameter—ball bearing equipped—rebuilt—specifications on request.
1—No. 1 Voith Pulper—capacity 20 tons per day—requires 20 h.p.
1—42" Liner and combining machine. Fourteen 6" diameter steam heated rolls and one drier 24" diameter.
3—Improved Paper Machy. Corp. #2 Knotters Bronze fitted. Good condition. Prints on request.
1—#2 Miami Jordan ¾ bronze fillings for direct connection to motor.
2—14"x20" Connersville Vacuum Pumps. These pumps are fully rebuilt.
3—12"x18" Connersville Vacuum Pumps. These pumps are fully rebuilt.
1—Downingtown 2500 lb. Iron Tub Cyclone Beater. Beater rolls 60" face, 72" diameter. This beater is in excellent condition, having been in operation less than 2 years. Prints on request.
2—Holyoke Platers—2 roll, 36" face x 18" diameter—complete with drive.
1—Nichols-Herreshoff Lime Kiln—vertical 65 tons capacity. Prints on request.
1—72" two drum Pusey & Jones Slitter & Winder will rewind 40" diam. rolls.
1—100" two drum Warren Slitter & Winder.
1—100" Two Bowl Reel—Bowls 20" diam.
1—E. D. Jones Standard Jordan with fast coupling and extended base for direct connection to motor.
1—Farrel Roll Grinder will take rolls 28" diam. 18' long. Motor equipped. 2—10 h.p. Motors. 1—15 h.p. Motor—Excellent condition. Photos on request.
1—156" Moore & White 4 drum uniform speed slitter & winder. 5 sets of King type slitters.
1—Williams #30 type G. A. Bark Hog with 125 h.p. Synchronous motor. Ball bearing equipped and new spare parts—used one year.
1—Sumner Disc Barker—72" diam. disc. Anti-friction bearings. Direct connected 30 h.p. motor. used 5 months.
1—140" two drum Warren Slitter & Winder.
45 Driers—96" face x 28" diameter complete with 2 deck frames, gears and bearings. M-17
1—Sturtevant Bale Pulper with conveyor complete with 150 h.p. motor and starter.
8—10" x 20" Shartle Brothers Triplex Stock Pumps.
1—12" x 20" Shartle Brothers Triplex Stock Pumps.
1—8" x 18" Shartle Brothers Triplex Stock Pumps.
1—8" x 10" Worthington Triplex Stock Pumps.
3—12" x 12" Goulds Triplex Stock Pumps.
1—7" x 18" Shartle Brothers Duplex Stock Pumps.
2—6" x 8" Beloit Centrifugal Stock Pumps.
All above pumps in excellent condition.
2—1000 lb. Horne Iron Tub Beaters.
1—1200 lb. Holyoke Wood Tub Beater. M-24

SITUATIONS WANTED

WANTED—Millwright, full charge maintenance in wet machine mill. Up to date plant in good condition located in New England. Permanent position for right man. Address Box 45-259 care Paper Trade Journal. M-31

FOR SALE

FOR SALE

30" Sheridan "New Model" Automatic Power Cutter.
44" Oswego hand clamp Power Cutter.
44" Seybold Holyoke Auto. Power Cutter.
63" Oswego Mill Type Cutter, power back gauge.
66" Clark Sheeter with Back Stand
110" Hamblet heavy duty Sheeter with backstand.
68" Rice Barton & Fales Slitter & Rewinder, for use on dry end of paper machine.
120" Moore & White 4-drum Rewinder.
36" Waldron Embosser.
4 Waldron 36" Paper Reels.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18, N. Y.
TF

FOR SALE

42 Dryers consisting of 85" and 86" face—36" diameter—complete with triple deck stands, gears, bearings and piping.

One Set (70) Heat Treated Carbon Steel Flybars together with woods for a 62" diameter by 50" face Dilts Bandless Beater Roll.

EMPIRE BOX CORPORATION
Garfield, New Jersey TF

FOR SALE

LABORATORY BEATER

1—10 lb. Noble & Wood Cycle Beater, with motor (complete in every detail).

BEATERS

2—2000 lb. Holyoke Iron Tub Beaters.
1—1000 lb. Dayton Beater.
2—400 lb. Gavit—iron tub beaters.

BLOWER

1—50" Buffalo.
Various other sizes.

CALENDER STACKS

1—11-Roll 92" Face Calender Stack—complete with Drive.
1—36" 7-roll—Holyoke Machine.
1—77" 2-roll—Moore & White.
1—84" 5-roll—Black-Clawson.

CENTRAP

1—Shartle Brothers Centrap.

CYLINDER MOULDS

1—48" Diameter x 96" Face.
8—30" diameter x 72" face.
3—30" diameter x 74" face.
1—36" diameter x 90" face.

DRIVES

1—D. O. James 75 H.P. Speed Reducer with couplings and motor bases. Ratio 2.16 to 1. 900 RPM to 418 RPM.
1—#6 Reeves Drive (practically new).
1—Pulmax Drive.

DRYERS

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1—36" x 44" face—with frames and bearings.
1—24" diameter x 84" face. (Baby).
1—16" diameter x 84" face. (Baby).
1—36" diameter x 116" face.
2—28" diameter x 68" face.

EMBOSSER

1—28" two roll Embossing Calender.

ERKENSTATORS

3—I. W. E. Erkenstators—bronze construction—complete with motors, starters and distributing box.

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2—8 plate Flat Screens.
1—18 plate Flat Screens, with scraper.

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1—Black-Clawson Jordan (belt driven).
1—#9 Emerson Jordan—for direct connection of a motor — requires use of 400 H.P. motor.
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1—84" Carthage Chipper—complete and in excellent condition.
1—32" three pocket Glens Falls Grinder (for 27" wood).
3—Rotary incinerators—9' diameter x 20' long.
4—27" four pocket Sandy Hill grinders (for 24" wood—including 1000 H.P. motor for each, starting equipment, etc.).

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1—#2 Lannoye Pulper.
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1—110" Horne single knife rotary sheet cutter.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

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1—36" Waldron sizing machine.

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1—114" Two drum Langston Slitter & Winder.
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1—114" Two drum Kidder slitter and winder.
1—36" Koegel slitter and winder.

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Fitchburg Duck Mills
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Woodward, Baldwin & Co.

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Colloid Co.
Amer. Cyanamid & Chem. Corp
American Resinous Chemicals Corp.
International Pulp Co.
W. H. Loomis Talc Corp.
Union Talc Co.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Moore & White Co.
J. O. Ross Engrg. Corp.
Worthington Pump & Mchy. Corp.
Witco Chemical Co.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Norton Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

WHERE TO BUY

GEARS
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Cevel-Hanchett Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Simonds Worden White Co.
United States Rubber Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Worthington Pump & Mchy Corp.

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan Inc.
United States Rubber Co.

INSTRUMENTS, TESTING AND MEASURING
W. H. & L. D. Betz
N. P. Bowsher
The Bristol Company
Builders-Providence, Inc.
The Foxboro Company
General Electric
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Wallace & Tiernan Co., Inc.

JORDAN FILLINGS
Appleton Machine Co.
Behr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Simonds Worden White Co.
Valley Iron Works Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Valley Iron Works Co.

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

LUBRICATORS
Hills-McCanna Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Walker-Goulard-Plehn Co.

MIXERS
Youngstown Welding & Engrg. Co.

MOISTENING EQUIPMENT
The Spray Engineering Co.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
Black-Clawson Company
Crane Company
Grinnell Company
Shartle Brothers Machine Co.
Taylor Forge & Pipe Works
Walworth Company
Youngstown Welding & Engrg. Co.

PLATERS
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSES
Black-Clawson Company
Farrel-Birmingham Co.
Dietz Machine Wks.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
Valley Iron Works Co.
Waldron Corp., John
Weber, Homer C.

PUG MILLS
Traylor Engineering & Mfg. Co.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Hills-McCanna Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
Quimby Pump Co. Div. of H. K. Porter Company, Inc.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company
Worthington Pump & Machinery Corp.

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp. J. O.
Valley Iron Works Co.

RECTANGULAR BINS
Traylor Engineering & Mfg. Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Rafiner Corp.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
The Brown Instrument Co.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Taylor Instruments Companies
Wallace & Tiernan
Westinghouse Electric Corporation

RESINS
American Cyanamid & Chemical Corp.
American Resinous Chemicals Corp.
The Resinous Products & Chemical Co.

ROLLS
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Roehlen Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Shenango-Penn Mold Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
The Cincinnati Rubber Mfg. Co.
Youngstown Welding & Engrg. Co.

ROLL STANDS
Cameron Machine Co.
Johnstone Eng. & Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.

ROTARY KILNS
Traylor Engineering & Mfg. Co.

SATURATING MACHINES
Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman C.

SCALES
Builders-Providence, Inc.
Merrick Scale Mfg. Co.

SCREEN PLATES
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Union Machine Co.
Union Screen Plate Co.

SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
Valley Iron Works Co.

SCRUBBERS
Traylor Engineering & Mfg. Co.

SHEET MACHINES
Thomas W. Hall Co.
The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
Valley Iron Works Co.

SHOWER PIPES
Bird Machine Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.

SIZING
American Cyanamid & Chemical Co.
American Resinous Chemicals Corp.
Black-Clawson Company
The Dow Chemical Co.
du Pont, E. I., de Nemours & Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Pioneer Salt Company
Socony-Vacuum Co.
Philadelphia Quartz Co.

SLITTERS
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Company
Johnstone Eng. & Machine Co.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Simonds Worden White Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SPRAY NOZZLES
The Spray Engineering Co.

STAINLESS STEEL
Eastern Stainless Steel Corp.
Industrial Steels, Inc.

STARCH
American Cyanamid & Chemical Corp.
Clinton Co.
National Starch Products, Inc.
Stein, Hall & Co., Inc.

WHERE TO BUY

STEAM SPECIALTIES
Johnson Corp.
Shartle Bros. Mch. Co.
Sickle Steam Specialties Co.

STRAPPING & STRAPPING MACHINES
The Stanley Works

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SUCTION BOXES
Black-Clawson Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Westinghouse Electric Corp.

SULPHUR
American Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company

SULPHUR BURNERS
Valley Iron Works Co.

TALC
American Cyanamid & Chemical Corp.
W. H. Loomis Talc Corp.
International Talc Company

TANKS
Frederick Mfg. Co.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
The Noble & Wood Machine Co.
H. K. Porter Company Inc.
Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
United States Rubber Co.
Waldron Corp., John
Youngstown Welding & Engrg. Co

THICKENERS, DECKERS & SAVEALLS
Bird Machine Company
Bulkley, Dunton Pulp Co. Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

TITANIUM
E. I. Du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

TOOLS
Acme Steel Company
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

TRUCKS
Elwell Parker Electric Co.
Wright-Hibbard Ind. Elec. Truck Co

TRAPS
Armstrong Machine Works
Crane Co.
Grinnel Company
Johnson Corporation
Shartle Bros. Mch. Co.

TUBS
Rodney Hunt Machine Co.
Noble & Wood Machine Co.
Shartle Brothers
Valley Iron Works Co.

TURBINES
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric Corp.
Worthington Pump & Machinery Corp.

USED EQUIPMENT
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
Shartle Brothers Machine Co.

VALVES
The Bristol Company
Crane Company
Dilts Machine Works
The Foxboro Company
Hills-McCanna Co.
E. D. Jones & Sons Co.
Kennedy Valve Mfg. Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Permutit Company
William Powell Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Taylor Instrument Companies
Valley Iron Works Co.
Walworth Company

VATS & VAT PARTS
Union Machine Co.
Union Screen Plate Co.

WASHERS
Bird Machine Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

WATER CONDITIONING
The Permutit Company

WAXING MACHINERY
Black-Clawson Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

WELDING EQUIPMENT
Allis-Chalmers Mfg. Co.
General Electric Company
Walworth Company
Westinghouse Electric Corp.

WET MACHINES
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WINDERS AND REWINDERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Johnstone Eng. & Machine Co.
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WIRES
Appleton Wire Works
Black-Clawson Company
Bulkley, Dunton Pulp Co. Inc.
Cheney Bigelow Wire Works
Hayden Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Shartle Brothers Machine Co.

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[PUMP TIPS FROM ALLIS-CHALMERS—ONE IN A SERIES]

How to make PACKING Last Longer . . .

MOST PACKING TROUBLE traces back to *lack of "know-how"* in caring for stuffing boxes. This is wasteful — time and money-wise — especially since *correct* packing procedure is so simple for maintenance men to understand and practise.

Another class of trouble traces to misalignment of pump and motor. For when shaft is deflected, sleeve is apt to wobble — greatly accelerating packing wear. To eliminate this problem, A-C engineers developed, for many applications, the "Electrifugal" pump — in which both motor and impeller are mounted on *one* shaft, in *one* frame. This means fewer parts, fewer bolted connections — no chance for misalignment.

Regardless of type of pumps you use, here is an outline of correct packing procedure — plus a few tips on what to look for when trouble *does* arise . . .

The *kind* of packing and how you use it have a lot to do with maintaining peak pumping efficiency. Here, at left, is a step-by-step outline of the correct way to install pump packing — saving you vital man-hours and money as well.

▸ Make certain packing is suitable for service it must perform . . . that it's the right size and made of the right materials. Be cautious of so-called "all-purpose" packings. If in doubt, check with your pump manufacturer.

▸ Don't force in new packing against the old. It's apt to displace lantern ring and plug sealing liquid opening. First remove *all* old packing; clean stuffing box thoroughly; then insert new packing.

▸ Put each ring of packing in separately, seating it firmly before adding the next. Stagger adjacent rings so that joints are at 180° angle to each other. If lantern rings are used, be careful that sealing liquid openings aren't blocked as new rings are installed.

▸ After required number of rings have been inserted, tighten gland nuts. Gland should be taken up evenly to *finger-tightness*. If compressed too tightly, packing will burn out or sleeves become scored.

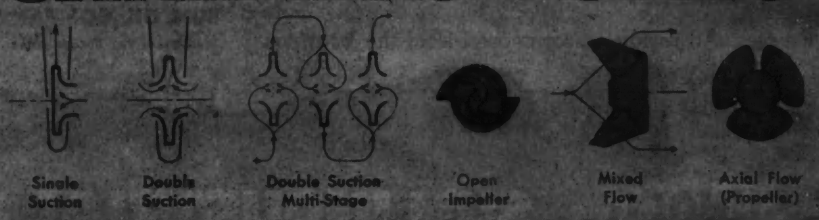
▸ Finally, until shaft turns over freely, operate pump for about 1-minute intervals — permitting packing to cool. Then put it into continuous operation.

▸ What to check for if packing wears too quickly — (1) Check shaft sleeves. If badly scored they grind down packing rapidly; (2) Check position of lantern ring. It may be displaced; (3) If water seal piping is used, check liquid. If it contains grit a separate source of sealing liquid should be obtained.

▸ Send for your *free* copy of Allis-Chalmers' "Handbook for Wartime Care of Centrifugal Pumps". It's the basic, easy-to-understand guide to efficient centrifugal pump maintenance. Contains *no* advertising; applies to *all* makes. ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 1754

ALLIS-CHALMERS PUMPS

Allis-Chalmers builds all types and variations of pumps shown at right. Capacities from 10 to 150,000 gpm—heads to 2500 lbs.



A NEW WRINKLE SAVES MONEY IN CORRUGATOR MAINTENANCE

SUN PAPER-MILL LUBRICANTS . . . Reduce

Maintenance-Costs on Corrugating and Cut-Off Machines, Eliminate Gumming and Caking on Bearings

A container manufacturer reported that his maintenance-department was "heated-up" because of trouble with the roller-bearings of the corrugating and cut-off machines. Temperatures of the rolls were approximately 340° F., and the heat was causing the oil and grease to gum and cake.

These abnormal operating-conditions were studied by a Sun Engineer. He recommended that they change from their former brand of oil and grease to one of Sun's Solnus oils and special greases prepared for high-temperature jobs.

All residue disappeared from the bearings when they switched to Sun products. After a year-and-a-half with Sun, the operators reported that operations had been cleaner, and maintenance-costs lower.

For every part of every machine in use in the paper industry today, there is a correct Sun lubricant. Whatever the size or nature of your paper-making operations, Sun's quality-line of oils and greases, plus the know-how of Sun Engineers, can help you to keep production up and costs down. Call in the Sun Engineer near you. Or write direct to . . .

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OILS FOR AMERICAN INDUSTRY